Peer Revision

Reviewers	University	Date of Revision
- Prof. Dawlat Salem	Cairo	10/12/2011
- Prof. Ahmad K. Mansur	Mansura	28/11/2011

Program Specification of Medical Doctorate Degree of Pathology

Sohag University **Faculty of Medicine**

A. Basic Information

1- Program Title: Medical Doctorate Degree in Pathology

2- Program Type: Single

3- Faculty: Faculty of Medicine

4- Department: Pathology

5- Coordinator: Dr. Afaf Al Nashar

6- Assistant coordinator: Dr. Eman Muhammad Salah el-Deen

7- External Evaluator: Prof. Dr. Thanaa Helal

8- Last date of program specifications approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018.

B. Professional Information

1. Program Aims:

The aim of this program is to provide the postgraduate with the basic medical knowledge and skills essential for the practice of pathology and necessary to gain further training and practice in the field of pathology through providing

1. Scientific knowledge essential for practice of pathology according to the international standards
2. Basic skills necessary for proper processing and diagnosis of submitted tissue specimens including problem solving and decision-making skills.
3. Ethical principles related to handling tissue specimens of the patients
4. Developing learning abilities necessary for continuous medical education & research interest and abilities

2. Attributes of the student:

1. Efficient in carrying out the basics and advances in scientific research methodologies in Pathology.
2. The continuous working to add new knowledge in the field of pathology.
3. Applying the analytical course and critical appraisal of the knowledge in his specialty and related fields.
4. Merging the pathological knowledge with the other related knowledge with conclusion and developing the relationships in between them.
5. Showing a deep awareness with the ongoing problems, theories, and advanced sciences in the specialty of pathology.
6. Determination of the professional problems in the specialty of pathology and creating solutions for them.
7. Efficient in carrying out the professional skills in his specialty.
8. Using advanced suitable technologies which serves his practice.
9. Efficient communication and leadership of team work in his specialty.
10. Decision making through the available information.
11. Using the available resources efficiently and working to find new resources.

Program Specification of Medical Doctorate Degree of Pathology

Sohag University **Faculty of Medicine**

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6. Determination of the professional problems in the specialty of pathology and creating solutions for them.
7. Efficient in carrying out the professional skills in his specialty.
8. Using advanced suitable technologies which serves his practice.
9. Efficient communication and leadership of team work in his specialty.
10. Decision making through the available information.
11. Using the available resources efficiently and working to find new resources.

12. Awareness with his role in the development of the society and preserve environment.
13. Behaving in a way which reflects his credibility, accountability, and responsibility.
14. Keeping continuous self development and transfer his experiences and knowledge to others.

3. Program Intended Learning Outcomes (ILOs)

a) Knowledge and understanding skills

By the end of the study of Master Program in Pathology the Graduate should be able to:

a1. Mention in details etiology, pathogenesis and mechanisms, complications and fate of cell injury, cell death, inflammation, repair, circulatory disturbances, microbial infections and extra & intracellular deposits)
a2. List in details genetic disorders: Gene mutations, Mendellian disorders, single gene disorder, disorders associated with defects in structural proteins, disorders associated with defects in receptor proteins. disorders associated with enzyme defects, , disorders associated with defects in proteins that regulate cell growth, cytogenetic disorders, and gene therapy and cloning
a3. List in details immunopathological disorders: hypersensitivity reactions, primary and secondary immunodeficiency diseases, autoimmune diseases (single organ & systemic diseases) and amyloidosis
a4. Enumerate in details organ transplant and pathology and immunological disorders of transplant rejection
a5. Mention in details cellular growth disorders: agenesis, aplasia, hyperplasia, hypertrophy, atrophy, metaplasia and dysplasia
a6. Mention in details etiological factors, histiogenesis, and classifications, pathological features (gross, microscopic, immunophenotyping & genotyping) of tumors
a7. List in details methods of grading and staging of tumors
a8. Enumerate in details factors affecting the prognosis, paramalignant syndromes and causes of death in malignant tumors
a9. Mention in details immune responses in tumors
a10. Mention in details the etiology, pathogenesis and mechanisms of diseases affecting cardiovascular system, respiratory system, genitourinary system, gastrointestinal tract, hepatobiliary tract, male genital system, female genital system, endocrine system, diseases of bone and soft tissue, central and peripheral nervous system, dermatopathology, diseases of the head and neck & mediastinal diseases
a11. List in details the gross and microscopic features and complications of diseases of the different body systems
a12. List in details factors affecting fate and prognosis of different diseases and pathological disorders
a13. Enumerate in details the principles and methods of appropriate assessment of fluid aspirate cytolology of different body fluids
a14. List in details common diagnostic and laboratory techniques necessary to establish diagnosis of different pathological disorders

a15. Mention in details applications of Molecular Pathology, Tumor markers, and Immunohistochemistry in diagnosis & differential diagnosis of diseases

a16. Enumerate in details the ethical and legal principles and of professional practice in the field of pathology.

a.17 Enumerate in details the recent advances of principles, methodologies, tools and ethics of scientific research, medical biostatistics and computer.

b) Intellectual skills:

By the end of the study of Master Program in Pathology the Graduate should be able to:

b1. Correlate as possible the clinical data obtained through the received hospital reports with finding of gross and microscopic examination to reach a final diagnosis or to list a differential diagnosis for further advanced investigations

b2. Select from different diagnostic alternatives the ones that help reaching a final diagnosis, without burden the patient or waste the time and money of the department and the patient

b3. Identify possible causes of misinterpretation of the microscopic findings and how to make the right decision

b4. Assess risks in professional practices in the field of pathology

b5. Plan for the development of performance in the field of pathology

b6. Link between knowledge for Professional problems' solving

b7. Conduct a research study and/or write a scientific study on a research problem

b8. Formulate scientific papers in the area of pathology

b9. Analyze researches and issues related to the pathology

b10. Criticize researches related to the field of pathology

c) Professional and practical skills:

By the end of the study of Master program in pathology the Graduate should be able to:

c1. Perform tissue dissection, fixation, tissue selection, trimming, for making paraffin blocks and manual and automated tissue processing of different surgically removed specimens

c2. Perform tissue slide staining, and cover slipping

c3. Set up and operate a microscope with its different magnifications effectively

c4. Recognize very well the microscopic features of tissue structure in normality and disease, as appropriate to one's level of experience

c5. Write a gross description report and put differential diagnosis depending on microscopic findings

c6. Identification of pathology problems and find solution

c7. Plan to improve performance in the field of pathology

c8. Assess methods and tools existing in the area of pathology

c9. Manage scientific discussion administration based on scientific evidences and proofs

d) General and Transferable skills

By the end of the study of Master Program in Pathology the Graduate should be able to:

d1. Manipulate computer programs; do web researches, to write an essay about recent subjects of pathology

d2. Use information technology to serve the development of professional practice
d3. Use different sources to obtain information and knowledge
d4. Communicate effectively; assess himself/herself to identify the personal learning needs
d5. Work coherently and successfully in a team, and team's leadership in various professional contexts
d6. Develop rules and indicators for assessing the performance of others
d7. Manage time efficiently
d8. Learn himself/herself continuously

4. Academic Standards:

Sohag Faculty of Medicine adopted the general National Academic Reference Standards (NARS) provided by the National Authority for Quality Assurance and Accreditation of Education (naquee) for postgraduate programs. This was approved by the Faculty Council decree NO. 6854, in session NO.177 dated: 18/5/2009. Based on these NARS Academic Reference standards (ARS) were suggested for this program. This ARS were revised by the external evaluator, and approved by the Faculty Council decree NO. 7528, in its session NO.191, dated: 15/3/2010. The adoption of NARS and the suggested ARS were approved by University council degree No 587, in its cession No.60. dated 26-12-2011.

5. Curriculum Structure and Contents

5. a. Program duration: 7 semesters (3.5 years)

5. b. Program structure:

5. b.i. No. of hours per week:

	Hours /Week	
Subject	Lectures	Practical/Tutorial
First Part:		
Minor		
Research Methodology	2 hours	2 hours
Biostatistics & Computer	2 hours	2 hours
General Pathology	4 hours	8 hours
Second Part:		
Systemic Pathology	7 hour	12.5 hours

code	Item		No	%
b.i	Total credit hours	Compulsory	90	100
		Elective	0	0
		Optional	0	0
b.iii	credit hours of basic sciences courses		8	8.9
b.iv	credit hours of courses of social sciences and humanities		0	0
b.v	credit hours of specialized courses:		53	58.9
b.vi	credit hours of other course		٦	6.7
b.vii	Practical/Field Training		8	8.9%
b.viii	Program Levels (in credit-hours system): Level 1: 1st part Level 2: 2nd Part Level 3: Thesis		 14 53 15	 16.7 58.9 16.7

6. Program Courses

6.1- Level/Year of Program:

Semester…1…..

First part:

a. Compulsory

	Course Title	Total No. of credit hours	No. of hours /week		Program ILOs Covered
			Lect.	Lab.	
FIRST PART					
a. Compulsory:	Research Methodology	3	2	2	d6-d8
	Biostatistics & Computer	3	2	2	B7-b10,d1-d5
	General Pathology	8 h.	4 h	8 h.	a1-a9, a16, b5, b6, c1, c2, c3, c4, c8, d1, d2, d3
SECOND PART					
a. Compulsory:	Systemic Pathology	53 h.	7 hour	12.5 hours	a10-a15, b1,b2, b3,b4, c5, c6, c7, c9, d1, d2, d3,d4, d5, d6, d7, d8

6.2. Repeat for all higher years/semesters/level

7. Program Admission Requirements

I- General Requirements.

- Candidate should have either MBBch degree from any Egyptian Faculty of Medicine or Equivalent Degree from Medical Schools abroad approved by the ministry of high Education.
- Candidate should know how to speak & write English well
- Candidate should have computer skills**.**
- Follow postgraduate bylaw Regulatory rules of Sohag Faculty of Medicine approved by the ministerial decree No. (44), dated 6/1/2010.

II- Specific Requirements

- Master degree in Pathology with at least "Good Rank".

8. Regulations for Progression and Program Completion

Duration of program is 90 credit hours (≥7 semesters ≥3.5 years), starting from registration till acceptance of the thesis; divided to:

First Part: (15 Credit hours ≥6 months ≥1 semester):

- Program-related basic science, Research Methodology, Ethics & medical reports, Biostatistics and computer.
- At least six months after registration should pass before the student can ask for examination in the 1st part.
- Two sets of exams: 1st in October — 2nd in April after fulfillment of the credit hours.
- At least 60% of the written exam and 60% of the total oral and practical/clinical is needed to pass in each course.
- For the student to pass the first part exam, a score of at least 60% (Level D) in each course is needed.
- Those who fail in one course need to re-exam it only.
- GPA of ≥1.3 is needed to pass this level (semester).

Second Part: (50-60 Credit hours ≥24 months= 4 semesters):

- Program related specialized science of Pathology courses. At least 24 months after passing the 1st part should pass before the student can ask for examination in the 2nd part.

- Fulfillment of the requirements in each course as described in the template and registered in the log book (8 Credit hours; with obtaining ≥75% of its mark) is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; the credit hours of the logbook are calculated as following:
  - Each Cr. Hr.= 60 working Hrs.
  - Logbook= 8 Cr. Hr. X 60 working Hrs = 480 Working Hrs.
  - Collection of working Hrs. is as following:

Activity		Hrs
Grand rounds	**اجتماع علمى موسع**	**٦**
Training courses	**دورات تدريبية**	**12/ day**
Conference attendance	**حضور مؤتمرات علمية** **داخلى** **خارجة**	 **١٢/day** **18/day**
Thesis discussion	**حضور مناقشات رسائل**	**٦**
Workshops	**حضور ورش عمل**	**١٢/day**
Journal club	**ندوة الدوريات الحديثة**	**٦**
Seminars	**لقاء علمى موسع**	**٦**
Morbidity and Mortality conference	**ندوة تحليل المخاطر المرضية أوالوفاة**	**٦**
Self education program	**برنامج التعليم الذاتى**	**٦**

- Two sets of exams: 1st in October - 2nd in April.
- At least 60% of the written exam is needed to be admitted to the oral and practical exams.
- 4 times of oral and practical exams are allowed before the student has to re-attend the written exam.

Third Part (Thesis) (15 Credit hours =24-48 months=4-8 semester):

- Documentation of the subject should not be delayed for > 1.5 years after registration.
- Could start after registration and should be completed, defended and accepted after passing the 2nd part final examination, after passing of at least 24 months after documentation of the subject of the thesis and after publishing of at least one paper from the thesis in a specialized peer-reviewed journal.
- Accepting the thesis is enough to pass this part.

9. Methods of student assessments:

Method of assessment	weight	The assessed ILOs
1-Research assignment		- General transferable skills, intellectual skills
2-Written Exams: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	50%	 - Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills
3-OSCE/ OSPE	50%	-Practical skills, intellectual skills, general transferable skills
4-Structured Oral Exams		- Knowledge, Intellectual skills, General transferable skills

Assessment schedule:

Part I:

- Biostatistics & Computer: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Research Methodology: Written Exam (2 hours) + structured oral Exam+ OSPE
- General Pathology: Written Exam (3 hours) + structured oral Exam + OSPE.

Part II:

- Systemic Pathology: Two Written Exams (3 hours for each) + OSPE + Structured oral Exam.

10. Evaluation of Program Intended Learning Outcomes

Evaluator	Tool	Sample
1- Senior students	Questionnaire	10
2- Alumni	Questionnaire	4
3- Stakeholders (Employers)	Questionnaire	15
4-External Evaluator(s) (External Examiner(s))	Report	1
5- Other		

Course Specifications of Biostatistics and Computer for MD Degree in Pathology

Sohag University **Faculty of Medicine**

A. Basic Information

1. Program on which the course is given: MD Pathology
2. Major or minor element of programs: Minor
3. Department offering the program: Pathology
4. Department offering the course: Community Medicine and public Health Department.
5. Academic year / Level : 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

Title: Course specification of Applied Biostatistics
in MD Degree in Pathology
Code: **COM 0525-300**
Total hours:

Title	lecture	practical	total	Credit
Applied biostatistics	**30**	**30**	**60**	**3**

B. Professional Information

1. Overall Aims of Course

1. To use precisely the computer programs and biostatistics

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of the course, the student is expected to be able to:

a1. Describe different programs of analysis of data and statistical packages
a2. Define the recent advances of sources of data and methods of collection.
a3. Summarize data, construct tables and graphs
a4. Calculate measures of central tendency and measures of dispersion
a5. Describe the normal curves and its uses
a6. Illustrate selected tests of significance and the inferences obtained from such tests
a7. Illustrate selected tests of significance for parametric and non parametric inferences
a8. Identify factor analysis and discrimination analysis
a9. Enumerate in details the recent advances of principles, methodologies, tools and ethics of scientific research, medical biostatistics and computer.

b) Intellectual Skills

By the end of the course, the student is expected to be allowed to:

b1.Understand how to collect and verify data from different sources
b2.Interpret data to diagnose prevalent problems in the field of Pathology.

c) Professional and Practical Skills:

By the end of the course, the student is expected to practice the following:

c1. Perform recent advanced technological methods in collection, analysis and interpretation of data and in management of prevalent problems in the field of Pathology

d) General and Transferable Skills:

By the end of the course, the student is expected to be able to:

d1. Use appropriate computer program packages.

d2. Use of different sources for information and knowledge about biostatistics.

3. Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
Recent advances in collection, analysis and interpretation of data	6	3	3
-Details of Tests of significance: Proportion test	6	3	3
Chi-square test	6	3	3
Student T test	6	3	3
Paired T test	6	3	3
-Correlation	4	2	2
-Regression	6	3	**3**
-ANOVA test	4	2	**2**
-Discrimination analysis	6	3	**3**
Factor analysis	4	2	**2**
- parametric and non parametric tests	6	3	**3**
Total hours	**60**	**30**	**30**
Total credit hours	**3**	**2**	**1**

4. Teaching and Learning Methods

4.1- Lectures

4.2- Practical sessions

4.3- Computer search assignments

4.4- Computer application

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	 - Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Intellectual skills, Knowledge, General transferable skills
5.4Computer search assignment	-General transferable skills, intellectual skills

Assessment Schedule

Assessment 1……..Final written exam		Week: 24
Assessment 2……..Final Structured Oral Exam		Week: 24
Assessment 3	Attendance and absenteeism throughout the course	
Assessment 4	Computer search assignment performance throughout the course	

Weighting of Assessments

Final-term written examination	50	%
Final Structured Oral Exam	50	%
Total	100	%

Formative only assessments: attendance and absenteeism and Computer search assignments performance.

6. List of References

6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

6.3- Periodicals, Web Sites, …etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites

7. Facilities Required for Teaching and Learning:

1- ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.

2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, color and laser printers.

Course Coordinator: Dr/**Foad Metry Atya**

Head of Department: Prof/ Ahmed Fathy Hammed

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specifications of Research Methodology for MD Degree in Pathology

Sohag University **Faculty of Medicine**

1. Major or minor element of programmes: Minor
2. Department offering the program: Pathology Department
3. Department offering the course: Community Medicine and public Health Department
4. Academic year / Level : 1st part
5. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Program Title: Course Specifications of (Research methods for health services with computer use) In MD Degree in Pathology

Code: **COM 0525-300**

Total hours:

Title	Lecture	Practical	Total	Credit
Research methods	**30**	**30**	**60**	**3**

B. Professional Information

1. Overall Aims of Course

1. To influence the students to adopt an analytical thinking for evidence based medicine
2. To use precisely the research methodology in researches

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of the course, the student is expected to be able to:

a1. Define the recent advances of screening tests pertinent to selected diseases and the at-risk approach in the application of screening tests.

a2. Explain the usefulness of screening tests, and calculate sensitivity, specificity, and predictive values.

a3. Describe the study design, uses, and limitations.

a4. List the recent advances of principles, methodologies, tools and ethics of scientific research.

a5. Explain the strategies and design of researches.

a6. Describe bias and confounding.

a7. Describe sampling techniques and list advantages of sampling

a8. Identify principles of evidence based medicine.

b) Intellectual Skills

By the end of the course, the student is expected to be able to:

b1. Conduct research studies that adds to knowledge.

b2. Formulate scientific papers in the field of Pathology

b3. Innovate and create researches to find solutions to prevalent problems in the field of Pathology

b4. Criticize researches related to Pathology

c) Professional and Practical Skills:

By the end of the course, the student is expected to be able to:

c1. Master the basic and modern professional skills in conducting researches in the field of Pathology

c2. Design new methods, tools and ways of conducting researches. .

d) General and Transferable Skills:

By the end of the course, the student is expected to be able to:

d1. Use of different sources for information and knowledge to serve research.

d2. Work coherently and successfully as a part of a team and team's leadership in conducting researches and field studies.

3. Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
Details of epidemiological studies (case control, cohort and cross sectional)	8	4	4
Clinical trials, Quasi experimental study	6	3	3
Bias and errors	6	3	3
Setting a hypothesis	6	3	3
Recent advances in screening	6	3	3
- Evidence – based Medicine: Concept and examples Applicability Scientific writing: A protocol A curriculum	4 4 4 4	2 2 2 2	2 2 2 2
Setting an objective - Critical thinking	2 2	1 1	1 1
Formulation of papers	8	4	4
Total	60	30	30
Credit hours	3	2	1

4. Teaching and Learning Methods

4.1- Lectures.

4.2- Computer search assignments

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	 - Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Intellectual skills, Knowledge, General transferable skills
5.4Computer search assignment	-General transferable skills, intellectual skills

Assessment Schedule

Assessment 1Final written exam Week: 24
Assessment 2Final Structured Oral Exam Week: 24
Assessment 3 Attendance and absenteeism throughout the course
Assessment 4 Computer search assignment performance throughout the course

Weighting of Assessments

Final-term written examination	50	%
Final Structured Oral Exam	50	%
Total	100	%

Any formative only assessments Attendance and absenteeism throughout the course
Computer search assignment performance throughout the course

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2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, colour and laser printers.

Course Coordinator: Dr/**Foad Metry Atya**

Head of Department: Prof/ Ahmed Fathy Hammed

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specification of General Pathology in MD Degree in Pathology

Sohag University **Faculty of Medicine**

A. Basic Information

1. Program on which the course is given: MD degree in pathology
2. Major or minor element of program: Minor
3. Department offering the program: Pathology
4. Department offering the course: Pathology
5. Academic year / Level: 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

Title: Course Specification of general Pathology in MD degree in Pathology
Code: **PAT 0525-300**
Total hours:

Title	lecture	practical	total	credit
general Pathology	**60**	**120**	**180**	**8**

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge of the general pathology of medical diseases

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

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

a1. Enumerate in details the major disease categories (cell response to injury, cell death, intracellular accumulations & cell aging, inflammation, tissue repair & wound healing, circulatory & hemodynamic disorders, basis of genetic disorders, disorders of immunity, infectious diseases, cellular growth disorders, nutritional disorders, environmental disorders, diseases of infancy & childhood, neoplasia) regarding etiology, pathogenesis, pathophysiology, morbid anatomy (gross & microscopic picture), complications, fate, prognosis, in addition to molecular basis of such disorders.

a2. Mention in details genetic disorders: Gene mutations, Mendellian disorders, single gene disorder, disorders associated with defects in structural proteins, disorders associated with defects in receptor proteins. disorders associated with enzyme defects, , disorders associated with defects in proteins that regulate cell growth, cytogenetic disorders, and gene therapy and cloning

a3. Mention in details immunopathological disorders: hypersensitivity reactions, primary and secondary immunodeficiency diseases, autoimmune diseases (single organ & systemic diseases) and amyloidosis

a4. Mention in details the pathology and immunological disorders of transplant rejection

a5. List in details cellular growth disorders: agenesis, aplasia, hyperplasia, hypertrophy, atrophy, metaplasia and dysplasia

a6. List in details etiological factors, histiogenesis, and classifications, pathological features (gross, microscopic, immunophenotyping & genotyping) of tumors

a7. Enumerate in details methods of grading and staging of tumors
a8. List in details the factors affecting the prognosis, paramalignant syndromes and causes of death in malignant tumors
a9. Mention in details the immune response in tumors
a10. List in details common diagnostic and laboratory techniques necessary to establish diagnosis of different pathological disorders
a11. Enumerate in details the applications of Molecular Pathology, Tumor markers, and Immunohisto chemistry in diagnosis & differential diagnosis of diseases
a12. List in details the ethical and legal principles and of professional practice in the field of pathology and ethics of scientific research

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b1. Correlate as efficiently as possible the clinical data obtained through the received hospital reports with finding of gross and microscopic examination to reach a final diagnosis or to list a differential diagnosis for further more advanced investigations
b2. Select from the different available special techniques the ones that can help reaching a final diagnosis, without burden the patient or waste the time and money of the department
b3. Conduct research studies that add to knowledge
b4. Formulate scientific papers in the area of pathology
b5. Assess risk in professional practices in the field of pathology
b6. Manage scientific discussion based on scientific evidences and proofs

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c1. Perform and train tissue dissection, fixation, trimming, tissue selection for making paraffin blocks and processing (manual and automated), slide staining and cover slipping of different surgically removed specimens
c2. Set up and operate a microscope effectively
c3. Use a microscope with its different magnifications effectively
c4. Recognize the microscopic features of tissue structure in normality and disease, as appropriate to one's level of experience
c5. Take pictures of microscopic fields through computer connected camera, with analyzing these pictures using image analysis & morphometry efficiently
c6. perform the special staining techniques perfectly
c7. Recognize features of histochemical and immunohisto-chemical stains in normal and diseased tissues with certainty
c8. Evaluate and develop of methods and tools existing in the area of pathology

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Use information technology to serve the development of professional practice
d2. Teach others and guide their performance
d3. Assess himself and identify of personal learning needs
d4. Use different sources for information and knowledge
d5. Work in a team with awareness of required duties, fulfilling obligations, and participation in team's leadership
d6. Perform efficiently scientific presentations

3. Course Contents:

Topics	No. of	Lecture	Practical/

		hours		Tutorial
Cell injury and reactions to an irritant:	**I- Cell injury and reactions to an irritant:**	51	12	39
Cellular adaptation to cell injury, cell death & aging	1.1. Cellular adaptation to cell injury, cell death	4 h.	1 h.	3 h.
	1.2. Timing, metabolic events & genetic damage in cellular aging	4 h.	1 h.	3 h.
Inflammation	1.3. Cellular events, morphologic patterns, chemical mediators & types of inflammation	4 h.	1 h.	3 h.
	1.4. Phagocytosis & defects in leucocytes function	4 h.	1 h.	3 h.
Tissue renewal and repair	1.5. Tissue renewal and repair; cellular growth, fibrosis & wound healing	4 h.	1 h.	3 h.
Hemodynamic disorders, thromboembolic disease and shock	1.8. Hemodynamic disorders, thromboembolic disease and shock	4 h.	1 h.	3 h.
Intracellular accumulation & pathologic calcification	1.6. Intracellular accumulation & pathologic calcification	4 h.	1 h.	3 h.
	1.7. Extracellular matrix & cell matrix interactions	4 h.	1 h.	3 h.
Environmental and nutritional pathology	1.8. Common occupation & environmental exposures	4 h.	1 h.	3 h.
	1.9. Nutritional deficiencies & obesity	4 h.	1 h.	3 h.
Tissue response to infection & infectious diseases	1.10. New & emerging infectious diseases	4 h.	1 h.	3 h.
	1.11. Immune evasion by microbes	4 h.	1 h.	3 h.
	1.12. Spectrum of inflammatory response to infections	4 h.	1 h.	3 h.
Cellular growth disorders & neoplasia	**2- Cellular growth disorders & neoplasia:**	60	20	40
	2.1. Cellular adaptation of growth & differentiation	6 h.	2 h.	4 h.
	2.2. Definitions & nomenclatures of neoplasia and tumors	6 h.	2 h.	4 h
	2.3. Characters of tumors	6 h.	2 h.	4 h
	2.4. Epidemiology of tumors	6 h.	2 h.	4 h
	2.5. Molecular basis of cancers	6 h.	2 h.	4 h

	2.6. Biology of tumor growth	6 h.	2 h.	4 h
	2.7. Carcinogenic agents & their cellular interactions	6 h.	2 h.	4 h
	2.8. Host defense against tumors; tumor immunity	6 h.	2 h.	4 h
	2.9. Clinical features & effects of tumors	6 h.	2 h.	4 h
	2.10. Laboratory diagnosis of tumors	6 h.	2 h.	4 h
Immunity & immunological disorders	**3- Immunopathology:**	12	12	----
	3.1. Messenger molecules of the immune system; cytokines	2 h.	2 h.	----
	3.2. Immunologic tissue injury; hypersensitivity reactions	2 h.	2 h.	----
	3.3. Organ transplantation & transplant rejection	2 h.	2 h.	----
	3.4. Autoimmune diseases	2 h.	2 h.	----
	3.5. Immunological deficiency syndromes; primary & secondary	2 h.	2 h.	----
	3.6. Amyloidosis	2 h.	2 h.	----
Principles of genetic diseases and molecular pathology	**4- Genetic disorders and molecular pathology:**	12	12	----
	4.1. Gene mutations	1 h.	1 h.	----
	4.2. Mendellian disorders	1 h.	1 h.	----
	4.3. Single gene disorder	1 h.	1 h.	----
	4.4. Disorders associated with defects in structural proteins	1 h.	1 h.	----
	4.5. Disorders associated with defects in receptor proteins	1 h.	1 h.	----
	4.6. Disorders associated with enzyme defects	1 h.	1 h.	----
	4.7. Disorders associated with defects in proteins that regulate cell growth	1 h.	1 h.	----
	4.8. Cytogenetic disorders	1 h.	1 h.	----
	4.9. Molecular diagnosis	2 h.	2 h.	----
	4.10. Cloning and gene therapy	2 h.	2 h.	----
Diseases of infancy and childhood	5- Diseases of infancy and childhood	13	2 4	9
Cytology and cytopathology	6- Cytology and cytopathology	16	---	16

Special techniques in surgical pathology	7- Special techniques in surgical Pathology	16	---	16
Total		**180**	**60**	**120**
Credit hours		**8**	**4**	**4**

4. Teaching and Learning Methods

4.1. Lectures

4.2. Practical lessons: Gross and histopathology (Jars & slides)

4.3. Assignments

4.4. Attending and participating in scientific conferences, workshops and thesis discussion to acquire the general and transferable skills needed

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	 - Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4-OSPE	-Practical skills, intellectual skills
5.5 assignment	-General transferable skills, intellectual skills

Assessment Schedule

Assessment 1: Review: week 8

Assessment 1: Review: week 12

Assessment 2: Final written exam: week 24

Assessment 3: OSPE: week 24

Assessment4: Final Structured Oral Exam: week24

Weighting of Assessments

Final-term written Examination	50%
Structured Oral Exam	30%
OSPE	20%
Total	100%

Formative only assessment: simple research assignments, and attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books):

- Muir's text book of Pathology, 14th edition, 2008.
- Robbins Pathologic Basis of Diseases, 9th edition, 2010.

6.2- Recommended Books:

- Rosai & Ackerman text book of Pathology, 10th edition, 2010.
- Sternberg text book of Pathology, 5th edition, 2010.

6.3- Periodicals:

- Journal of Pathology
- Human Pathology

- Modern Pathology
- Histopathology
- American Journal of Pathology.

Web Sites: http://www.ncbi.nlm.nih.gov/pubmed/
- http://www.uscap.org
- http://www.aacr.org
- http://www.ascp.org

7. Facilities Required for Teaching and Learning:

1. **Adequate infrastructure** including teaching places (teaching class, teaching halls, teaching laboratory), comfortable disks, and good sources of aeration, bathrooms, and good illumination and safety and security tools
2. **Teaching tools** including screens computers, data shows, projectors, flip charts, white boards video player, digital video camera, scanner, copier, color and laser printers

Course Coordinator: Dr. Eman Muhammad Salah El-Deen

Head of Department: Dr. Afaf Taha Elnshar

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specification of Systemic Pathology in MD degree in Pathology

Sohag University Faculty of Medicine

1. Program on which the course is given: MD degree in Pathology
2. Major or minor element of program: Major
3. Department offering the program: Pathology
4. Department offering the course: Pathology
5. Academic year / Level: 2nd part.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification of Pathology in MD degree in Pathology
Code: **PAT 0525-300**
Total hours:

Title	Lecture	Practical	total	Credit
Pathology	**420**	**750**	**1170**	**53**

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge of the pathology of medical diseases

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

By the end of the course the candidate should be able to:

a1. Mention in details the etiology, pathogenesis and mechanisms of diseases affecting cardiovascular system, respiratory system, genitourinary system, gastrointestinal tract, hepatobiliary tract, male genital system, female genital system, endocrine system, diseases of bone and soft tissue, central and peripheral nervous system, dermatopathology, diseases of the head and neck & mediastinal diseases

a2. Enumerate in details the gross and microscopic features and complications of diseases of the different body systems

a3. List in details factors affecting fate and prognosis of different diseases and pathological disorders

a4. Mention in details the principles and methods of appropriate assessment of fluid aspirate cytolology of different body fluids

a5. Mention in details common diagnostic and laboratory techniques necessary to establish diagnosis of different pathological disorders

a6. List in details recent advances & applications of Molecular Pathology, Tumor markers, and Immunohistochemistry in diagnosis & differential diagnosis of diseases

a7. Enumerate in details the ethical and legal principles and of professional practice in the field of pathology and ethics of scientific research

b) Intellectual Skills:

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

b1. Correlate efficiently the clinical data obtained through the received hospital reports with finding of gross and microscopic examination to reach a final diagnosis or to list a differential diagnosis for further more advanced investigations

b2. Select perfectly from the different available special techniques the ones that can help reaching a final diagnosis, without burden the patient or waste the time and money of the department

b3. Conduct perfectly research studies that add to knowledge

b4. Formulate perfectly scientific papers in the area of pathology

b5. Plan to improve performance in the field of pathology

b6. Assess risks in professional practices in the field of pathology

b7. Identify perfectly causes of misinterpretation of the microscopic findings and how to make the right decision

b8. Have the ability to innovate nontraditional solutions to the different diagnostic problems

b9. Manage perfectly scientific discussion based on scientific evidences and proofs

b10. Criticize researches related to pathology

c) Professional and Practical Skills:

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

c1. Recognize very well the microscopic features of tissue structure in normality and disease, as appropriate to one's level of experience

c2. Recognize perfectly features of histochemical and immunohisto-chemical **s**tains in normal and diseased tissues with certainty

c3. Write gross and microscopic description report with suitable final summaries & final diagnosis or differential diagnosis

c4. Evaluate and develop of methods and tools existing in the area of pathology

c5. Use of technological methods to serve the professional practice

c6. Plan for the development of professional practice and development of the performance of others

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Use information technology to serve the development of professional practice

d2. Teach others and evaluate their performance

d3. Communicate effectively; assess himself/herself to identify the personal learning needs

d4. Use different sources for information and knowledge

d5. Work in a team and team's leadership

d6. Administrate scientific meetings according to the available time

3. Course Contents:

Topic	No. of hours	Lecture	Practical/ Tutorial
1. Diseases of Blood vessels:	46	18	28
1.1. Congenital anomalies of the blood vessels	1	1	-
1.2. Recent advances in atherosclerosis	5	3	2
1.3. Recent advances in hypertension	8	2	6
1.4. Vasculitis	14	4	10
1.5. Recent advances in aneurysms	1	1	-
1.6. Recent advances in thrombophelibitis & phelibothrombosis	3	1	2
1.7. Lymphangitis & lymphedema	3	1	2
1.8. Recent advances in varicose veins	1	1	-
1.9. Tumors of the blood vessels	10	4	6
2. Diseases of the Heart:	44	18	26
2.1. Recent advances in endocardium & rheumatic fever	6	2	4
2.2. Recent advances in ischemic heart diseases	6	2	4
2.3. Recent advances in myocarditis	4	1	3
2.4. Recent advances in valvular heart diseases	3	1	2
2.6. Recent advances in congenital heart diseases	5	2	3
2.5. Recent advances in hypertensive heart diseases	2	1	1
2.6. Cardiac dysfunction & heart failure	4	3	1
2.7. Pericardial effusions & pericarditis	3	1	2
2.8. Neoplastic heart diseases	2	1	1
2.9. Cardiac effects of non cardiac neoplasms	4	1	3
2.10. Carcinoid heart diseases	2	1	1
2.11. Complications of artificial valves	2	1	1
2.12. Cardiac transplantation	1	1	-
3. Diseases of the Respiratory system & **Medistinum**:	80	30	50
3.1. Congenital anomalies of the lung & bronchi	3	1	2
3.2. Recent advances in chronic obstructive airway diseases	4	2	2
3.3. Recent advances in pneumonias and lung infections	10	4	6
3.4. Recent advances in chronic suppurative lung diseases	6	2	4
3.5. Restrictive lung diseases & pneumoconiosis	6	2	4
3.6. Recent advances in atelectasis and lung collapse	4	2	2
3.7. Recent advances in pulmonary hypertension	4	2	2
3.8. Pulmonary involvement in collagen & vascular diseases	5	2	3
3.9. Recent advances in pleural effusions &	5	2	3

empyema			
3.10. Recent advances in tumors of the lung	16	4	12
3.11. Tumors of the pleura	6	2	4
3.12. Mediastinitis	4	2	2
3.13. Mediasinal tumors (thymoma & lymphoma)	7	3	4
4. Diseases of the Gastrointestinal tract:	110	44	66
4.1. Congenital anomalies & motor dysfunction	2	1	1
4.2. Esophagitis	3	1	2
4.3. Esophageal varices & hematemesis	2	1	1
4.4. Esophageal tumors	5	2	3
4.5. Congenital anomalies & pyloric stenosis	2	1	1
4.6. Acute gastritis, chronic gastritis	5	2	3
4.7. Helicobacter associated gastritis	5	2	3
4.8. Autoimmune gastritis, chemical and drug induced gastritis	3	1	2
4.9. Peptic ulcers	5	2	3
4.10. Gastric epithelial tumors	8	2	6
4.12. Gastointestinal stromal tumors GIST	8	3	5
4.13. Congenital anomalies (stenosis, atresia, diverticulae	2	1	1
4.14. Enterocolitis including infections	5	2	3
4.15. Malabsorption syndrome	5	2	3
4.16. Inflammatory bowel diseases	8	3	5
4.17. Vascular diseases of the intestine	3	2	1
4.18. Diverticular diseases of the intestine	2	1	1
4.19. Intestinal obstruction	5	2	3
4.20. Melena & rectal bleeding	1	1	0
4.21. Epithelial tumors of the intestine	8	3	5
4.22. Gastrointestinal lymphoma	8	3	5
4.23. Mesenchymal tumors of the intestine	5	2	3
4.24. Diseases of the appendix	5	2	3
4.25. Carcinoid tumors of the GIT	5	2	3
5. Diseases of the Liver & Biliary system:	80	30	50
5.1. Hepatic injury (degenerations & necrosis)	6	2	4
5.2. Hepatitis and liver cirrhosis.	12	4	8
5.3. Drug & toxin induced liver diseases	3	1	2
5.4. Circulatory disturbances of the liver	3	1	2
5.5. Portal hypertension and liver cell failure	4	2	2
5.6. Jaundice & cholestasis	4	2	2
5.7. Inborn errors of metabolism	3	1	2
5.8. Autoimmune hepatitis	2	1	1
5.9. Hepatic diseases associated with pregnancy	2	1	1
5.10. Pediatric liver diseases	3	1	2
5.11. Nodular hyperplasia & dysplastic liver nodules	6	2	4
5.12. Tumors of the liver	10	3	7
5.13. Liver transplant	3	1	2
5.14. Hepatic complications of organ or bone	2	1	1

marrow transplantation			
5.15. Congenital anomalies of the gall bladder & biliary passages	2	1	1
5.16. Cholelithiasis	2	1	1
5.17. Cholecystitis	4	2	2
5.18. Ascending cholangitis & biliary atresia	2	1	1
5.19. Tumors of the gall bladder & biliary passages	7	2	5
6. Diseases of the Pancreas & peritoneum:	30	12	18
6.1. Congenital anomalies & pancreatic cysts	4	2	2
6.2. Pancreatitis	4	2	2
6.3. Pancreatic tumors	8	2	6
6.4. Inflammations, infections of the peritoneum	4	2	2
6.5. Ascites	4	2	2
6.6. Tumors of the peritoneum	6	2	4
7. Diseases of the Urinary tract:	100	30	70
7.1. Congenital anomalies & cystic diseases of the kidneys	2	1	1
7.2. Pathology of glomerular injury	3	1	2
7.3. The pathology of renal failure	4	2	2
7.4. Recent advances in glomerulonepheritis	10	2	8
7.5. Pyelonephritis & hydronephrosis	6	1	5
7.6. Acute tubular necrosis	3	1	2
7.7. Interstitial nephritis & analgesic nephropathy	2	1	1
7.8. Nephrotic syndrome	3	1	2
7.9. Vascular diseases of the kidney	3	1	2
7.10. Urinary tract obstruction (obstructive uropathy)	2	1	1
7.11. Urolithiasis (renal calculi & stones)	3	2	1
7.12. Glomerular lesions associated with systemic disease	6	1	5
7.13. Renal diseases of pregnancy	3	1	2
7.14. Radiation nepheropathy	3	1	2
7.15. Thrombotic microangiopathesis	3	1	2
7.16. Hemolytic uremic syndrome	3	1	2
7.17. Renal transplant & transplant rejection	4	1	3
7.18. Hematurea	2	2	0
7.19. Tumors of the kidney & renal pelvis	10	2	8
7.20. Congenital anomalies & diverticulosis	3	1	2
7.21. Cystitis	5	1	4
7.22. Obstruction & calculi of urinary bladder	5	1	4
7.23. Tumors of the urinary bladder & ureter	8	2	6
7.24. Inflammations & tumors of urethera	4	1	3
8. Diseases of the Male reproductive system:	60	20	40
8.1. Congenital anomalies of the testis	3	2	1
8.2. Vascular disturbances (tortion) of the testis	3	2	1
8.3. Orchitis & inflammation of the epidedmis	4	2	2
8.4. Male infertility	12	2	10

8.5. Testicular tumors	12	2	10
8.6. Prostatitis	4	2	2
8.7. Benign prostatic hyperplasia	4	2	2
8.8. Recent advances in prostatic tumors	14	4	10
8.9. Penis: congenital anomalies, inflammation & tumors	4	2	2
9. Diseases of the Female reproductive system:	100	35	65
9.1. Bartholin cyst, vulvar dystrophies & non-neoplastic epithelial disorders	5	2	3
9.2. Tumors of the vulva & vagina	5	2	3
9.3. Paget's disease	4	2	2
9.4. Remnants & ectopias & metaplasia of the uterine cervix	4	2	2
9.5. Cervicitis & endometritis	5	2	3
9.6. Functional endometrial disorders	4	2	2
9.7. Effects of hormonal administration	4	2	2
9.8. Dysfunctional uterine bleeding & hyperplasia	9	2	7
9.9. Endometrial polyps & & adenomyosis	7	2	5
9.10. Recent advances in uterine neoplasms	12	3	9
9.11. Abnormal uterine bleeding	2	2	0
9.12. Salpingitis & oophoritis	3	1	2
9.13. Non-neoplastic functional cysts	4	2	2
9.14. Recent advances in ovarian tumors	13	3	10
9.15. Placental site trophoplastic tumor	4	2	2
9.16. Disorders of pregnancy (abortions & ectopic pregnancy)	5	2	3
9.17. Trophoblastic diseases (hydatiform mole, partial mole, invasive mole & choriocarcinoma)	10	2	8
10. Diseases of the The Breast:	50	14	36
10.1. Inflammations, duct-ectasia & fat necrosis	6	2	4
10.2. Fibrocystic changes & benign proliferative breast diseases	15	3	12
10.3. Tumors of the breast	21	5	16
10.4. Paget's disease	4	2	2
10.5. Gynecomastia & tumors of the male breast	4	2	2
11. Diseases of the Endocrine system:	80	30	50
11.1. Hyperpitutarism & hypopitutarism	2	1	1
11.2. Pituitary tumors	5	2	3
11.3. Hypothalamic & suprasellar tumors	2	1	1
11.4. Thyroiditis & autoimmune diseases	3	1	2
11.5. Hyperthyroidism & hypothyroidism	3	1	2
11.6. Grave's disease & goiter	3	1	2
11.7. Thyroid tumors	14	4	10
11.8. Hyper & hypoparathyroidism	1	1	0
11.9. Pseudo- hyperparathyroidism	1	1	0
11.10. Parathyroid adenomas	5	2	3
11.11. Heterotopia & cortical nodule	2	1	1
11.12. Hyperplasia & adrenocortical hyperfunction	3	1	2

11.13. Adrenal insufficiency	2	2	0
11.14. Adrenocortical tumors	6	1	5
11.15. Pheochromocytoma	7	2	5
11.14. Neuroblastoma	6	1	5
11.15. Diabetes mellitus	3	3	0
11.16. Diseases of endocrine pancreas & islet cell tumors	6	1	5
11.17. Multiple endocrine neoplasia syndromes	4	2	2
11.18. Pinealomas	2	1	1
12. Diseases of Muscles & Peripheral nerves:	30	9	21
12.1. Muscle atropy, dystrophy	2	1	1
12.2. Myopathies	3	1	2
12.3. Diseases of neuro-muscular junctions	3	3	-
12.4. Peripheral nerve tumors.	11	2	9
12.5. Tumors of the skeletal muscles	11	2	9
13. Diseases of the Central Nervous System:	40	20	20
13.1. Hydrocephalus	2	2	-
13.2. Cerebrovascular disorders	4	3	1
13.3. Meningitis, encephalitis & brain abscess	5	3	2
13.4. Demyelinating diseases (multiple sclerosis)	4	2	2
13.5. Degenerative diseases (Alzheimer, Pick, Parkinsonism)	4	2	2
13.6. Cerebral edema & raised intracranial tension	3	2	1
13.7. Brain tumors	18	6	12
14. Diseases of the skin:	80	30	50
14.1. Warts, herpes & mollascum contagiosum	3	1	2
14.2. T.B, syphilis & leprosy	7	3	4
14.3. Fungal diseases (tinea, blstomycosis)	4	1	3
14.4. Sarcoidosis & foreign body reactions	3	1	2
14.5. Psoriasis & lichen planus	7	3	4
14.6. Dermatitis & dermatosis	6	2	4
14.7. Lupus erythematosis, dermatomyositis & sclerderma	3	1	2
14.8. Drug eruptions	2	1	1
14.9. Disorders of pigmentation & melanocytes; vitilligo, freckle, melasma & lentigo	3	1	2
14.10. Nevi & mole	4	2	2
14.11. Dysplastic nevi & melanoma	6	2	4
14.12. Benign epithelial tumors	6	2	4
14.13. Premalignant & malignant epithelial tumors	7	3	4
14.14. Tumors of the dermis	6	2	4
14.15. Tumors of the skin appendages	6	2	4
14.16. Tumors of cellular immigrants to the skin	6	2	4
14.17. Graft versus host disease	2	1	-
15. Diseases of Bone, Joints & soft tissue:	90	30	60
15.1. Bone modeling & remodeling	1	1	-
15.2. Developmental anomalies of the skeleton	1	1	-

15.3. Osteoprosis, rickets & osteomalsia	2	1	1
15.4. Osteopetrosis & osteogenesis imperfecta	2	1	1
15.5. Osteonecrosis (avascular necrosis)	2	1	1
15.6. Hyperparathyroidism & renal osteodystrophy	2	2	-
15.7. Osteomyelitis	9	3	6
15.8. Bone tumors & tumor-like lesions	20	4	16
15.9. Rheumatoid arthritis & osteoarthritis	6	4	2
15.10. Sero-negative sponduloartheritis	3	2	1
15.11. Tumors & tumor like lesions of joints & synovial membranes	15	3	12
15.12. Soft tissue tumors; benign & malignant tumors of fibroblasts, myofibroblasts, fibrohistiocytic tumors, adipose tissue tumors, skeletal muscles, smooth muscles tumors & peripheral nerve sheath tumors & tumors of synovial membranes	21	5	16
15.13. Tumors of uncertain etiology	6	2	4
16. Diseases of hematopoitic and lymphoid system:	60	20	40
16.1. Lymph node evaluation	5	1	4
16.2. Neutropenia & leucocytosis	1	1	-
16.3. Lymphadenitis	6	2	4
16.4. Inflammatory/hyperplastic diseases (generalized lymadenopathy)	6	2	4
16.5. Lymph node inclusions	2	1	1
16.6. Leukemias	11	3	8
16.7. Lymphoma	22	6	16
16.8. Plasma cell dyscrasias	5	2	3
16.9. Hypersplenism	1	1	-
16.10. Splenomegally	1	1	-
17. Diseases of Mandible & Maxilla:	30	10	20
17.1. Cysts	16	6	10
17.2. Tumors	14	4	10
18. Diseases of the Ear:	30	10	20
18.1. Non-neoplastic Disorders	14	6	8
18.2. Tumors of the Ear	16	4	12
19. Diseases of the Eye:	30	10	20
19.1. Diseases of the eyelids	12	2	10
19.2. Diseases of the conjunctiva & cornea	9	4	5
19.3. Diseases of the uvea & retina	9	4	5
Total	**1170**	**420**	**750**
Credit hours	**53**	**28**	**25**

4. Teaching and Learning Methods

4.1. Lectures

4.2. Practical lessons: Gross and histopathology (Jars & slides)

4.3. Assignments

4.4. Attending and participating in scientific conferences, workshops and thesis discussion to acquire the general and transferable skills needed

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2- Log book	- General transferable skills
5.3-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	 - Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.4-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.5-OSPE	-Practical skills, intellectual skills
5.6 Computer search assignment	-General transferable skills, intellectual skills

Assessment Schedule

Assessment 1: Review: week20
Assessment 2: Review: week40
Assessment 2: Review: week60
Assessment 3: Log book; week 80-82
Assessment 4: Final written exam: week 96
Assessment 5: OSPE: week 96
Assessment6: Final Structured Oral Exam: week 96

Weighting of Assessments

- Final Written Examination. Separate exam.

Passing in the written exam is a condition to attend the following exams:

Structured Oral Exam. 50 %
OSPE 50 %

Total 100%

Formative only assessment: Log book, simple research assignments, and attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books):

- Muir's text book of pathology, 15th edition, 2014.
- Robbins Pathologic Basis of Diseases, 10th edition, 2015.

6.2- Recommended Books:

- Rosai&Ackerman text book of Pathology, 11th edition,2017
- Sternberg text book of Pathology, 6th edition, 2015.

6.3- Periodicals:

- Journal of Pathology
- Human Pathology
- Modern Pathology
- Histopathology
- American Journal of Pathology.

Web Sites: http://www.ncbi.nlm.nih.gov/pubmed/

- http://www.uscap.org
- http://www.aacr.org
- http://www.ascp.org

7. Facilities Required for Teaching and Learning:

1. Adequate infrastructure: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable disks, good sources of aeration, bathrooms, good illumination and safety and security tools.
2. Teaching tools: including screens, computers, data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, color and laser printers.

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