



Benha University.
Faculty of Medicine.
Department of Histology & Cell Biology

Course Specifications

Course title: Histology & Cell Biology

Code: Histo 0702

Academic Year (2009 – 2010)

Department offering the course: *Histology & Cell Biology*
Department

- Academic year of **M.B. & B.Ch.** program: first Year / under graduate level
- Date of spec
- Specification approval: 2009 – 2010.

A) Basic Information:

- Allocated marks: 150 marks.
- Course duration: 30 weeks of teaching.
- Teaching hours: 10 hours / week = 300 total teaching hours.

	Hours / week	Total hours
1- Lectures	2 hours/week for 30 weeks	60 hrs
2- Small group teaching / tutorials	1 hrs/week for 30	30hrs

	weeks	
3- Practical	3hours/week for 20weeks	60 hrs
Total	30 weeks	150 hrs

B) Professional Information:

1- Overall Aim of the Course:

- 1.1. To provide a scientific knowledge of the normal structure of the human body cells at the level of molecular & cellular biology.
- 1.2. To provide appropriate knowledge for tissue processing for making histological slides.
- 1.3. To enable the students to know basics of cytogenetics and cell biology.

2- Intended Learning Outcomes (ILOs):

2.1. Knowledge and understanding:

By the end of the course, students should be able to:

- 2.1.1. Define different general histological terminology.
- 2.1.2 Describe the basic principles of structure of different body cells.
- 2.1.3 Describe the basic principles of cell cycles and basics of cytogenetic.
- 2.1.4 Outlines major clinical applications of cytogenetic diseases.
- 2.1.5 Describe the basic principles of histochemistry.

2.2. Practical and Clinical Skills

By the end of the course, students should be able to:

- 2.2.1. *Maintain honesty and integrity in all interactions wit teachers, colleagues, patients and others with whom physicians must interact in their professional lives.*
- 2.2.2. *Value the ethics and respect to all individuals inside and outside the dissecting room and pay a good deal of respect to the cadavers.*
- 2.2.3. Identify different histological micrographs specially for E/M.

2.2.4. *Recognize the scope and limits of their role as a students as well as the necessity to seek and apply collaboration with other workers.*

2.2.5. *Be responsible towards work.*

2.2.6. *Maintain a professional image concerning behavior, dress and speech*

2.2.7. Interpret some clinical findings in relation to developmental basis.

2.3. Professional Attitude and Behavioral kills:

By the end of the course, students should be able to:

2.3.1. Demonstrate Respect for patients' rights and involve them and /or their caretakers in management decisions.

2.3.2. Demonstrate respect to all patients irrespective of their socioeconomic levels, culture or religious beliefs using appropriate language to establish a good patient-physician relationship.

2.3.3. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague).

2.3.4. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer patients to appropriate health facility at the appropriate stage.

2.4. Communication skills:

By the end of the program the graduate will be able to:

2.4.1. Communicate clearly, sensitively and effectively with patients and their relatives, and colleagues from a variety of health and social care professions.

2.4.2. Establish good relations with other health care professionals regardless their degrees or rank (top management, subordinate or colleague).

2.4.3. Communicate effectively with individuals regardless of their social, cultural, ethnic backgrounds, or their disabilities.

2.4.4. Cope up with difficult situations as breaking news.

2.4.5. Respect patients and their relatives, superiors, colleagues and all members of the health profession.

2.5. Intellectual Skills:

By the end of the course, students should be able to:

2.5.1. . Apply the Histological facts while examining the slides in order to reach a proper diagnosis

2.5.2. Interpret the normal histological facts with clinical correlations

2.6. General and transferable Skills:

By the end of the course, students should be able to:

2.6.1. Recognize the legal and moral aspects of medical practice.

2.6.2 *Present data in an organized and informative manner.*

2.6.3 *Demonstrate appropriate professional attitudes and behaviors in different practice situations.*

2.6.4 Establish life-long self-learning required for continuous professional development.

2.6.5 Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.

2.6.6 Retrieve, manage, and manipulate information by all means, including electronic means.

2.6.7 Present information clearly in written, electronic and oral forms.

2.6.8 Establish effective interpersonal relationship to Communicate ideas and arguments.

3- Course contents:

TOPIC	No of hours	practical	Tutorial/Practical
I-Microtechnique 1-methods of preparation of microscopic sections. 2-steps of preparation and aim of each step. 3-advantage &disadvantage of each method. 4-principle of staining with H&E. 5-other staining methods.	4	2	2
II-Microscopy 1-types of microscopes 2-préparation of sections for Light microscope &Electron microscope	2	1	1
III- Cytology	14	7	7

<p>1-LM&EM picture ,function and molecular biology of cytoplasmic organelles:</p> <p>-membranous(cell membrane, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes, peroxisomes, proteosomes and annulate lamellae)</p> <p>-non membranous organelles(ribosomes, microtubules ,centrioles, cilia , flagella and microfilaments)</p> <p style="text-align: center;">2-inclusions</p> <p>3-nucleus: structure by LM&EM ,function 4-DNA 5-types of RNA 6-physiological cell death</p>			
<p>IV-Cytogenetics</p> <p>1-cell cycle and cell division (mitosis meiosis)</p> <p>2-Gametogenesis(oogenesis &spermatogenesis)</p> <p>3-structure of chromosomes</p> <p>4-chromosomal study& <i>karyotyping</i></p> <p>5-chromosomal bands: <i>G banding, fluorescence in situ hybridization</i></p> <p>6-Sex chromatin (Barr body)</p> <p>7-chromosomal aberrations:</p> <p style="padding-left: 20px;">a-numerical abnormalities:</p> <p>i-aneuploidy (<i>monosomy, trisomy</i>)</p> <p>ii-polyploidy (<i>triploidy , tetraploidy, endoreduplication</i>)</p> <p style="padding-left: 20px;">b-structural abnormalities:</p>	6	3	3

<p>1- translocation 2- deletion.</p> <p>3- inversion. 4- insertion.</p> <p>5- isochromosome 6- dicentric chromosome.</p> <p>7- ring chromosome. 8- duplication.</p> <p>9- fragile x chromosome</p>				
<p>V-Epithelial tissue:</p> <p>1-Properties of epithelium .</p> <p>2-Types of epithelium:(covering -glandular - neuro epithelium & myoepithelium)</p> <p>3-Examples and sites of each type.</p> <p>4-Functional importance.</p> <p>5-Modification of epithelial cell surfaces.</p>	4	2	2	
<p>VI- Connective tissue</p> <p>1-general character of connective tissue proper.</p> <p>2-constituents of CT (ground substance, fibers, cells).</p> <p>3-structure , types and staining properties of CT fibers.</p> <p>4-types of connective tissue proper and site of each:</p> <p>1. loose (areolar) connective tissue .</p> <p>2. white fibrous or tendinous connective tissue .</p> <p>3. yellow elastic connective tissue</p> <p>4. adipose connective tissue</p> <p>5. reticular connective tissue</p> <p>6. muroid (myxomatous) connective tissue</p>	4	2	2	

<p>VII- Cartilage :</p> <p>1-histological features of cartilage cells, fibers & matrix.</p> <p>2-Types of cartilage and their specific histological features.</p> <p>a-hyaline cartilage.</p> <p>b. yellow elastic cartilage.</p> <p>c. white fibro-cartilage.</p>	2	1	1
<p>VIII-Bone</p> <p>1-General microscopic features of bone and how it can be studied histologically</p> <p>2-Types (compact & spongy bone): structure, sites, and function.</p> <p>3-Bone cells :structure (LM&EM) and functions .</p> <p>4-Intercellular substance of bone .</p> <p>5-The development and ossification</p>	4	2	2
<p>IX-Blood</p> <p>1-red blood corpuscles (histological structure &function).</p> <p>2- histological structure &function of granular leucocytes(neutrophil ,eosinophil , basophils).</p> <p>3- histological structure &function of non granular leucocytes (lymphocytes& monocytes).</p> <p>4-differential leucocytic count</p> <p>5-blood platelets (histological structure &function).</p>	4	2	2

<p>6-haemopoiesis. 7-myeloid tissue(inactive yellow bone marrow& active red bone marrow).</p>			
<p>X-Muscle tissue</p> <p>1-General character and types .</p> <p>2-skeletal muscle:</p> <ul style="list-style-type: none"> -general features &types of skeletal muscle fibers . -organization of skeletal muscle. -functional ultrastructure of myofibrils& sarcomere. -molecular structure of actin and myosin -muscle contraction -innervation of skeletal muscle -cardiac muscle <p>-general structure and functional relations.</p> <p>-Intercalated discs</p> <p>-Conducting system of the heart</p> <p>-moderator band</p> <p>3-smooth muscle :</p> <p>general structure, muscle contraction& innervation.</p> <p>4- comparative study of three types of muscles.</p> <p>5- growth and regenerative ability of muscular tissue .</p>	4	2	2

<p>XI-Nervous tissue</p> <p>1-Structure of neuron (LM&EM) cell body, axon, ,dendrites 2- types of nerve cells 3-types and structure of nerve fibers 4-organization of nerve fibers myelination of CNS&PNS 6-nerve ganglia (types &structure). 7-synapses(structure and types) 8-degeneration and regeneration of neurons 9-stain used to study nervous tissue including those of degeneration 10-Neuroglia structure and their functions 11-Types and structure of nerve endings (receptors and effector)</p>	4	2	2
<p>I-CARDIOVASCULAR SYSTEM</p> <p>1-general structure of the wall of blood vessels</p> <p>2-Arteries: Large , Medium-Sized& small (histological structure &function)</p> <p>3-Veins ;Large , Medium-Sized& small(histological structure &function)</p> <p>4-histological structure of specialized arteries &veins.</p> <p>5-arteriovenous connections :</p> <p>a-Capillaries histological structure and function</p> <p>b- Sinusoids</p> <p>c-arteriovenous anastomosis</p> <p>6-Heart; histological structure of myocardium ,myocardium ,endocardium and ves</p>	4	2	2
<p>II-THE IMMUNE SYSTEM AND LYMPHOID ORGANS</p> <p>1-structure of lymph vessels</p> <p>2-distribution and structure of lymphoid tissue</p>	4	2	2

<p>3-lymphatic organs:</p> <p>a- Lymph Nodes (histological structure &function)</p> <p>b-Spleen(histological structure &function& microcirculation)</p> <p>c-Tonsils(histological structure &function)</p> <p>d-Thymus(histological structure &function)</p> <p>e-Mucosal immune system (histological structure &function)</p> <p>4-Mononuclear phagocytes</p> <p>5-Cells involved in the immune system</p> <p>6- Antigen presenting cells</p>			
Total	60	30	30

4- Teaching and learning methods:

METHODS USED:

1. Lectures.
2. Small group discussions: Museum specimens, demonstration (x ray films and data show), models.
3. Tutorials
4. Practical classes

TEACHING PLAIN:

Lectures: 120 lectures

Tutorials: 60 tutorials

Practical classes: 120 practical classes

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	<u>2</u> times/week; One hour each/30weeks	60 hours	40%
Practical classes	<u>2</u> times/week; 3 hour each/20 week	60 hours	40%
Tutorials	<u>2</u> times/week; one hour each/30weeks	60 hours	20%
Total		180 hours	100%

5- Students Assessment methods:

5-A) ATTENDANCE CRITERIA:

1. Practical attendance
2. Practical books

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition, including MCQs
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- Assessment 1	Week -----21
2- Assessment 2	Week -----
3- Assessment 3	Week -----
4- Final exam	At end of year (week 30)

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First half of the academic year	10	6%
2- Mid-year exam	10	6%
3- Second half of the academic year	10	4%
3- Final exam: a- Written b- Practical c- Oral	75 30 15	50% 24% 6%
4- Assignments & other activities	10	4%
Total	150	100%

FORMATIVE ASSESSMENT:

- Student knows his marks after the Formative exams.

5-E) Examination description:

Examination	Description
1- First half of the academic year	Quiz (MCQs), short questions
2- Mid-year	Quiz (MCQs), short questions & practical exam
3- Second half	Quiz (MCQs), short questions & practical exam
3- Final exam: a- Written b- Practical c- Oral	<ul style="list-style-type: none"> • select (MCQs) & Supply (Short essay) & cases • Do, identify • How many sessions
4- Assignments & other activities	. Assignments, projects, practical books

6- List of references:

6.1- Basic materials:

Department books:

- 1- Histology & cell Biology Department, Benha Faculty of Medicine
- 2- Practical books

6.2- Essential books (text books):

- **Junqueira Basic Histology**

6.3- Recommended books:

- Gartner & Hiatt Atlas Histology
- Wheater's functional Histology

6.4- Periodicals, Web sites, etc:

- <http://www.anatomy.com>
- <http://www.medscape.com>.
- <http://www.pubmed.com>.
- <http://sciencedirect.com>.

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Faculty lectures halls: 2
- Department lectures halls: 4
- Museum hall: 6TH floor
- Department lab.
- Audio-visual teaching equipments (Computer, data show,)
- Models and mannequins
- Data show, scientific pictures archives.
- Radiology collections & archives.

Course coordinator: : Prof. Saadia Ahmed Shalaby

Head of Department: Prof. Saadia Ahmed Shalaby

Date: 2009- 2010

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Course Report
Academic Year 2009 – 2010

A- Basic Information:

1- Course title and code: Histology & cell Biology

2- _1st academic year of M.B. & B.Ch. Program

3- Allocated marks 150

4- No. of hours: 4.8 hours /week

5- Teaching staff:

a- Number of teaching staff categories

Professors:

Prof. Dr. Mohamed Magdy Zaky

Prof. Dr. Eman EL Nashar

Assistant professors

Lecturers

Assistant lectures

Demonstrators.

b- Student / staff / course Ratio (Academic year or round for clinical departments)

6- Course coordinator: Prof. Dr. Mohamed Magdy Zaky

7- External evaluator: Prof. Dr. Gamal Hagra

B- Statistical Information:

Number of students starting the course		
Number of students completing the course		Number (% of starting No.)
Number of fail students		Number (% of completing)
Number of pass students		Number (% of completing)
Grades	Excellent	Number (% of pass)
	Very good	Number (% of pass)

	Good	Number (% of pass)
	Fair	Number (% of pass)

C- Professional Information:

1- Course topics taught:

A) Lectures:

<p>II-THE IMMUNE SYSTEM AND LYMPHOID ORGANS</p> <p>1-structure of lymph vessels</p> <p>2-distribution and structure of lymphoid tissue</p> <p>.</p> <p>3-lymphatic organs:</p> <p>a- Lymph Nodes (histological structure &function)</p> <p>b-Spleen(histological structure &function& microcirculation)</p> <p>c-Tonsils(histological structure &function)</p> <p>d-Thymus(histological structure &function)</p> <p>e-Mucosal immune system (histological structure &function)</p> <p>4-Mononuclear phagocytes</p> <p>5-Cells involved in the immune system</p> <p>6- Antigen presenting cells</p>	4	2	2
<p>I-CARDIOVASCULAR SYSTEM</p> <p>1-general structure of the wall of blood vessels</p> <p>2-Arteries: Large , Medium-Sized& small (histological structure &function)</p> <p>3-Veins ;Large , Medium-Sized& small(histological structure &function)</p> <p>4-histological structure of specialized arteries &veins.</p>	4	2	2

<p>5-arteriovenous connections :</p> <p>a-Capillaries histological structure and function</p> <p>b- Sinusoids</p> <p>c-arteriovenous anastomosis</p> <p>6-Heart; histological structure of cardiacium ,myocardium ,endocardium and ves</p>				
<p>I-Microtechnique</p> <p>1-methods of preparation of microscopic sections.</p> <p>2-steps of preparation and aim of each step.</p> <p>3-advantage &disadvantage of each method.</p> <p>4-principle of staining with H&E.</p> <p>5-other staining methods.</p>	4	2	2	
<p>II-Microscopy</p> <p>1-types of microscopes</p> <p>2-préparation of sections for Light microscope &Electron microscope</p>	2	1	1	
<p>III- Cytology</p> <p>1-LM&EM picture ,function and molecular biology of cytoplasmic organelles:</p> <p>-membranous(cell membrane, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes, peroxisomes, proteosomes and annulate lamellae)</p> <p>-non membranous organelles(ribosomes, microtubules ,centrioles, cilia , flagella and microfilaments)</p> <p>2-inclusions</p> <p>3-nucleus: structure by LM&EM ,function</p> <p>4-DNA</p> <p>5-types of RNA</p> <p>6-physiological cell death</p>	14	7	7	
<p>IV-Cytogenetics</p> <p>1-cell cycle and cell division (mitosis meiosis)</p>	6	3	3	

<p>2-Gametogenesis(oogenesis & spermatogenesis)</p> <p>3-structure of chromosomes</p> <p>4-chromosomal study & <i>karyotyping</i></p> <p>5-chromosomal bands: <i>G banding</i>, fluorescence <i>in situ hybridization</i></p> <p>6-Sex chromatin (Barr body)</p> <p>7-chromosomal aberrations:</p> <p>a-numerical abnormalities:</p> <p>i-aneuploidy (<i>monosomy, trisomy</i>)</p> <p>ii-polyploidy (<i>triploidy, tetraploidy, endoreduplication</i>)</p> <p>b-structural abnormalities:</p> <p>1- translocation 2- deletion.</p> <p>3- inversion. 4- insertion.</p> <p>5- isochromosome 6- dicentric chromosome.</p> <p>7- ring chromosome. 8- duplication.</p> <p>9- fragile x chromosome</p>				
<p>V-Epithelial tissue:</p> <p>1-Properties of epithelium .</p> <p>2-Types of epithelium:(covering -glandular - neuro epithelium & myoepithelium)</p> <p>3-Examples and sites of each type.</p> <p>4-Functional importance.</p> <p>5-Modification of epithelial cell surfaces.</p>	4	2	2	
<p>VI- Connective tissue</p> <p>1-general character of connective tissue</p>	4	2	2	

<p>proper.</p> <p>2-constituents of CT (ground substance, fibers, cells).</p> <p>3-structure , types and staining properties of CT fibers.</p> <p>4-types of connective tissue proper and site of each:</p> <ol style="list-style-type: none"> 1. loose (areolar) connective tissue . 2. white fibrous or tendinous connective tissue . 3. yellow elastic connective tissue 4. adipose connective tissue 5. reticular connective tissue 6. mucoid (myxomatous) connective tissue 			
<p>VII- Cartilage :</p> <p>1-histological features of cartilage cells, fibers & matrix.</p> <p>2-Types of cartilage and their specific histological features.</p> <p>a-hyaline cartilage.</p> <p>b. yellow elastic cartilage.</p> <p>c. white fibro-cartilage.</p>	2	1	1
<p>VIII-Bone</p> <p>1-General microscopic features of bone and how it can be studied histologically</p> <p>2-Types (compact & spongy bone): structure, sites, and function.</p> <p>3-Bone cells :structure (LM&EM) and</p>	4	2	2

functions . 4-Intercellular substance of bone . 5-The development and ossification			
IX-Blood 1-red blood corpuscles (histological structure &function). 2- histological structure &function of granular leucocytes(neutrophil , eosinophil , basophils). 3- histological structure &function of non granular leucocytes (lymphocytes& monocytes). 4-differential leucocytic count 5-blood platelets (histological structure &function). 6-haemopoiesis. 7-myeloid tissue(inactive yellow bone marrow& active red bone marrow).	4	2	2
X-Muscle tissue 1-General character and types . 2-skeletal muscle: -general features &types of skeletal muscle fibers . -organization of skeletal muscle. -functional ultrastructure of myofibrils& sarcomere. -molecular structure of actin and myosin -muscle contraction -innervation of skeletal muscle -cardiac muscle -general structure and functional relations.	4	2	2

-Intercalated discs -Conducting system of the heart -moderator band 3-smooth muscle : general structure, muscle contraction & innervation. 4- comparative study of three types of muscles. 5- growth and regenerative ability of muscular tissue .			
XI-Nervous tissue 1-Structure of neuron (LM&EM) cell body, axon, ,dendrites 2- types of nerve cells 3-types and structure of nerve fibers 4-organization of nerve fibers myelination of CNS&PNS 6-nerve ganglia (types &structure). 7-synapses(structure and types) 8-degeneration and regeneration of neurons 9-stain used to study nervous tissue including those of degeneration 10-Neuroglia structure and their functions 11-Types and structure of nerve endings (receptors and effector)	4	2	2
Total	120	60	60

- Percent of specified topics actually covered (> 90% Specified topics that were not taught and justification (Reasons in details):
 -none
- Taught topics other than those specified & justification (Reasons in details):
 none-

B) Practical:

II-THE IMMUNE SYSTEM AND LYMPHOID ORGANS 1-structure of lymph vessels 2-distribution and structure of lymphoid tissue	4	2	2
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<p>.</p> <p>3-lymphatic organs:</p> <p>a- Lymph Nodes (histological structure &function)</p> <p>b-Spleen(histological structure &function& microcirculation)</p> <p>c-Tonsils(histological structure &function)</p> <p>d-Thymus(histological structure &function)</p> <p>e-Mucosal immune system (histological structure &function)</p> <p>4-Mononuclear phagocytes</p> <p>5-Cells involved in the immune system</p> <p>6- Antigen presenting cells</p>			
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TOPIC	No of hours	practical	Tutorial/Practical
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III- Cytology 1-LM&EM picture ,function and molecular biology of cytoplasmic organelles: -membranous(cell membrane, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes, peroxisomes, proteosomes and annulate lamellae) -non membranous organelles(ribosomes, microtubules ,centrioles, cilia , flagella and microfilaments) 2-inclusions 3-nucleus: structure by LM&EM ,function 4-DNA 5-types of RNA 6-physiological cell death	14	7	7
IV-Cytogenetics 1-cell cycle and cell division (mitosis meiosis) 2-Gametogenesis(oogenesis &spermatogenesis) 3-structure of chromosomes 4-chromosomal study& <i>karyotyping</i> 5-chromosomal bands: <i>G banding</i> ,	6	3	3

<p>fluorescence <i>in situ hybridization</i></p> <p>6-Sex chromatin (Barr body)</p> <p>7-chromosomal aberrations:</p> <p> a-numerical abnormalities:</p> <p> i-aneuploidy (<i>monosomy, trisomy</i>)</p> <p> ii-polyploidy (<i>triploidy , tetraploidy, endoreduplication</i>)</p> <p> b-structural abnormalities:</p> <p> 1- translocation 2- deletion.</p> <p> 3- inversion. 4- insertion.</p> <p> 5- isochromosome 6- dicentric chromosome.</p> <p> 7- ring chromosome. 8- duplication.</p> <p>9- fragile x chromosome</p>				
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<p>VI- Connective tissue</p> <p>1-general character of connective tissue proper.</p> <p>2-constituents of CT (ground substance, fibers, cells).</p> <p>3-structure , types and staining properties of CT fibers.</p> <p>4-types of connective tissue proper and site</p>	4	2	2	

<p>of each:</p> <ol style="list-style-type: none"> 1. loose (areolar) connective tissue . 2. white fibrous or tendinous connective tissue . 3. yellow elastic connective tissue 4. adipose connective tissue 5. reticular connective tissue 6. mucoid (myxomatous) connective tissue 				
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XI-Nervous tissue 1-Structure of neuron (LM&EM) cell body, axon, ,dendrites 2- types of nerve cells 3-types and structure of nerve fibers 4-organization of nerve fibers myelination of CNS&PNS 6-nerve ganglia (types &structure). 7-synapses(structure and types) 8-degeneration and regeneration of neurons 9-stain used to study nervous tissue including those of degeneration 10-Neuroglia structure and their functions 11-Types and structure of nerve endings (receptors and effector)	6	3	3	
Total	60	30	30	

- Percent of specified topics actually covered (> 90% Specified topics that were not taught and justification (Reasons in details):
none-
- Taught topics other than those specified & justification (Reasons in details):
none-

C) Tutorials / small group discussions:

TOPIC	No of hours	practical	Tutorial/Practical	
I-Microtechnique 1-methods of preparation of microscopic sections. 2-steps of preparation and aim of each step. 3-advantage &disadvantage of each method. 4-principle of staining with H&E. 5-other staining methods.				
II-Microscopy 1-types of microscopes 2-préparation of sections for Light microscope &Electron microscope				
III- Cytology 1-LM&EM picture ,function and molecular biology of cytoplasmic organelles:				

<p>-membranous(cell membrane, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes, peroxisomes, proteosomes and annulate lamellae)</p> <p>-non membranous organelles(ribosomes, microtubules ,centrioles, cilia , flagella and microfilaments)</p> <p style="text-align: center;">2-inclusions</p> <p>3-nucleus: structure by LM&EM ,function 4-DNA 5-types of RNA 6-physiological cell death</p>			
<p>IV-Cytogenetics</p> <p>1-cell cycle and cell division (mitosis meiosis)</p> <p>2-Gametogenesis(oogenesis &spermatogenesis)</p> <p>3-structure of chromosomes</p> <p>4-chromosomal study& <i>karyotyping</i></p> <p>5-chromosomal bands: <i>G banding</i>, <i>fluorescence in situ hybridization</i></p> <p>6-Sex chromatin (Barr body)</p> <p>7-chromosomal aberrations:</p> <p style="padding-left: 20px;">a-numerical abnormalities:</p> <p>i-aneuploidy (<i>monosomy, trisomy</i>)</p> <p>ii-polyploidy (<i>triploidy , tetraploidy</i>, endoreduplication)</p> <p style="padding-left: 20px;">b-structural abnormalities:</p> <p>1- translocation 2- deletion.</p>			

<p>3- inversion. 4- insertion.</p> <p>5- isochromosome 6- dicentric chromosome.</p> <p>7- ring chromosome. 8- duplication.</p> <p>9- fragile x chromosome</p>			
<p>V-Epithelial tissue:</p> <p>1-Properties of epithelium .</p> <p>2-Types of epithelium:(covering -glandular - neuro epithelium & myoepithelium)</p> <p>3-Examples and sites of each type.</p> <p>4-Functional importance.</p> <p>5-Modification of epithelial cell surfaces.</p>			
<p>VI- Connective tissue</p> <p>1-general character of connective tissue proper.</p> <p>2-constituents of CT (ground substance, fibers, cells).</p> <p>3-structure , types and staining properties of CT fibers.</p> <p>4-types of connective tissue proper and site of each:</p> <ol style="list-style-type: none"> 1. loose (areolar) connective tissue . 2. white fibrous or tendinous connective tissue . 3. yellow elastic connective tissue 4. adipose connective tissue 5. reticular connective tissue 6. mucoid (myxomatous) connective tissue 			
<p>VII- Cartilage :</p>			

<p>1-histological features of cartilage cells, fibers & matrix.</p> <p>2-Types of cartilage and their specific histological features.</p> <p>a-hyaline cartilage.</p> <p>b. yellow elastic cartilage.</p> <p>c. white fibro-cartilage.</p>			
<p>VIII-Bone</p> <p>1-General microscopic features of bone and how it can be studied histologically</p> <p>2-Types (compact & spongy bone): structure, sites, and function.</p> <p>3-Bone cells :structure (LM&EM) and functions .</p> <p>4-Intercellular substance of bone .</p> <p>5-The development and ossification</p>			
<p>IX-Blood</p> <p>1-red blood corpuscles (histological structure &function).</p> <p>2- histological structure &function of granular leucocytes(neutrophil ,eosinophil , basophils).</p> <p>3- histological structure &function of non granular leucocytes (lymphocytes& monocytes).</p> <p>4-differential leucocytic count</p> <p>5-blood platelets (histological structure &function).</p> <p>6-haemopoiesis.</p> <p>7-myeloid tissue(inactive yellow bone</p>			

marrow& active red bone marrow).			
X-Muscle tissue 1-General character and types . 2-skeletal muscle: -general features &types of skeletal muscle fibers . -organization of skeletal muscle. -functional ultrastructure of myofibrils& sarcomere. -molecular structure of actin and myosin -muscle contraction -innervation of skeletal muscle -cardiac muscle -general structure and functional relations. -Intercalated discs -Conducting system of the heart -moderator band 3-smooth muscle : general structure, muscle contraction& innervation. 4- comparative study of three types of muscles. 5- growth and regenerative ability of muscular tissue .	12	6	6

XI-Nervous tissue 1-Structure of neuron (LM&EM) cell body, axon, ,dendrites 2- types of nerve cells 3-types and structure of nerve fibers 4-organization of nerve fibers myelination of CNS&PNS 6-nerve ganglia (types &structure). 7-synapses(structure and types) 8-degeneration and regeneration of neurons 9-stain used to study nervous tissue including those of degeneration 10-Neuroglia structure and their functions 11-Types and structure of nerve endings (receptors and effector)	12	6	6
Total	120	60	60

- Percent of specified topics actually covered (> 90%)
- Specified topics that were not taught and justification (Reasons in details):
-none
- Taught topics other than those specified & justification (Reasons in details):
-none

2- Teaching and learning methods:

Method specified	Applied or not	Comments
1- lectures		
2- Practical		
3- Tutorials		
4- etc		

- Methods that were not used and justify:
-
- Methods used other than those specified and justify:
-

3- Student assessment:

a- Methods of assessment

Method specified	Total Marks (% of Total Marks)	
	Specified	Actual
1- Written examination		
2- Oral examination		
3- Practical		
4- etc		
Total		

- Justify any deviation from specified

b- State the rules applied for the selection of the examination committee.

State the names of the members of the examination committee.

c- State the involvement of the external evaluator in:

- The match between the examination and the topics taught.
- The existence of grading criteria in examination sheets
- The allocation and distribution of marks and weighting
- Effectiveness of the overall assessments in measuring the achievement of the intended learning outcomes (ILOs).

4- Facilities and teaching materials:

Facilities & Teaching Materials	Totally Adequate	Partially Adequate	Inadequate	Impact on Delivery of the course Or achieving ILOs
1- Lecture halls				
2- A-V aids				
3- Laboratories				
4- Equipments				
5- Specimens				
6- Library				
7- etc				

Identify inadequacies, together with any problems in the delivery of the course or achieving the ILOs.

5- Administration constraints:

State any administrative constraints related to teaching and learning e.g. lack of:

- Some facilities or funds
- Teaching aids
- Site visits
- Qualified personnel for laboratory and administration
- Management problems or regulations, which impeded the delivery of the course and the achievement of the ILOs.

6- Results of course evaluation by students:

- Method used e.g. Questionnaires, interviews, focus group etc.
- State the main points e.g. teaching, facilities, assessments.....
- Achievement of Course's ILOs.
- Response to any criticisms by the faculty members delivering the course, together with their proposals for dealing with those issues.

7- External evaluator's comments:

- State the issues raised by the external evaluator
- Responses from the faculty members delivering the course, together with their proposals for dealing with those issues.

8- Course enhancement:

a- Previous Action Plan

Specified Action	Status Completed or Not	Reasons for non-completion
1-		
2-		

Write the issues not handled from those raised in the previous report and the reasons for overlooking such issues.

b- Action plan for program enhancement over the next academic year (200X – 200Y):

Action Required	Completion date Or Time Schedule	Person Responsible
1-		
2-		

- **Add actions not completed in the previous action plan.**
- **The action plan is fundamental to the success of the quality system.**
- **It appears at the end of the report, because it is the result of all of prior analysis.**
- **Enhancement can only take place if issues are identified and then acted upon and resolved.**
- **The action plan identifies the issues, prioritizes them and dictates the necessary action to be taken.**
- **It is also clearly places the responsibility for the implementation of the action and the resolution of the associated issues, in a given time scale on named individuals.**

Course Coordinator:

Signature

Date: / / 200