



Course Specification of Medical Parasitology

CXV. General Information:						
1	Course Title:	Medical Parasitology				
2	Course Number & Code:	Ph653				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tr.	Seminar.	
		1	2			2
4	Study level/ semester at which this course is offered:	3 rd Year/ 1 st semester				
5	Prerequisite:	None				
	Co-requisite:	None				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	-				
10	Location of teaching the course:	Faculty of Pharmacy- Sana`A University				
11	Prepared by:	Associate prof. Rashad Abdul-Ghani				
12	Date of approval:					

CXVI. Course Description:

This course aims to provide pharmacy students with the essential information about the different types of protozoan and helminthic parasites and the parasitic diseases. It focuses on the morphologic and infective stages of parasites, their life cycle and mode(s) of transmission, pathogenesis and clinical features, diagnosis, treatment, and prevention and control of parasitic diseases.

CXVII. Intended learning outcomes (ILOs) of the course

At the end of this course, the students will be able to:

1. Outline medically important parasites and parasitic diseases.
2. Describe the distribution, morphology, life cycle, infective stages, hosts, mode(s) of transmission, pathogenesis and clinical features, diagnosis, best therapeutic approaches and prevention and control of parasitic diseases.
3. Recognize zoonotic and vector-borne parasitic infections and their impact on human health.
4. Propose best approaches to prevent and control of parasitic infections prevalent in Yemen.
5. Propose the best cost-effective therapeutic approaches to the control of parasitic diseases prevalent in



Yemen.

6. Identify the gross morphology of visible parasite.
7. Properly use light microscope for morphologic identification of parasite stages.
8. Efficiently use computer and internet to gather information and gain knowledge.
9. Work independently or collaboratively to prepare seminars/ presentations or write reports.
10. Effectively use internet resources to search for up-to-date information to solve emerging problems.

XVIII. Intended learning outcomes (ILOs) of the course

(A) Knowledge and Understanding Skills:

Alignment of Course-Intended Learning Outcomes (CILOs) to Program-Intended Learning Outcomes (PILOs) in Knowledge and Understanding.

PILOs in knowledge and understanding		CILOs in knowledge and understanding	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
A1-	Recognize the principles of physical, chemical, clinical, social, behavioral, health and pharmaceutical sciences.	a1-	Explain major concepts in medical parasitology and outline medically important parasites and parasitic diseases.
A3-	Describe the general cellular, biochemical and physiological aspects of human body and recognize the pharmacokinetics, pharmacodynamics, disease pathophysiology, and pharmacogenetic of therapeutic agents to provide pharmaceutical care and facilitate management of patient's medication, rationalize drug use and overall health needs.	a2-	Describe the distribution, morphology, life cycle, infective stages, hosts, mode(s) of transmission, pathogenesis and clinical features, diagnosis, best therapeutic approaches and prevention and control of parasitic diseases.
		a3-	Recognize zoonotic and vector-borne parasitic infections and their impact on human health.

Teaching and Assessment Methods for Achieving Learning Outcomes

Alignment of learning outcomes of knowledge and understanding to teaching and assessment methods:

CILOs in Knowledge and Understanding		Teaching strategies/methods	Methods of assessment
After participating in the course, students would be able to:		<ul style="list-style-type: none"> • Presentations • Discussion-oriented lectures 	<ul style="list-style-type: none"> • Quizzes • Mid-semester and final exams
a1-	Explain major concepts in medical parasitology and outline medically important parasites and parasitic diseases.		



a2-	Describe the distribution, morphology, life cycle, infective stages, hosts, mode(s) of transmission, pathogenesis and clinical features, diagnosis, best therapeutic approaches and prevention and control of parasitic diseases.		(MCQs, short-answer and essay questions)
a3-	Recognize zoonotic and vector-borne parasitic infections and their impact on human health.		

(B) Intellectual Skills

Alignment of Course CILOs to PILOs in intellectual skills:

PILOs in intellectual skills		CILOs of intellectual skills	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
B4-	Plan a modern system for administration of medical foundations and merge the ethics to business during the drug marketing	b1-	Propose best approaches to prevent and control of parasitic infections prevalent in Yemen.
B5-	Interpret the prescriptions, patient and clinical data, Analysis all the encountered pharmaceutical problems and plan the strategies for their solution, to develop the health care.	b2-	Propose the best cost-effective therapeutic approaches to the control of parasitic diseases prevalent in Yemen.

Teaching and Assessment Methods for Achieving Learning Outcomes

Alignment of learning outcomes of intellectual skills to teaching methods and assessment methods:

CILOs in intellectual skills		Teaching strategies/methods	Methods of assessment
After participating in the course, students would be able to:			
b1-	Propose best approaches to prevent and control of parasitic infections prevalent in Yemen.	<ul style="list-style-type: none"> Brainstorming Oral presentations 	<ul style="list-style-type: none"> Coursework assignments Oral exams
b2-	Propose the best cost-effective therapeutic approaches to the control of parasitic diseases prevalent in Yemen.		

(C) Professional and Practical Skills



Alignment of CILOs to PILOs in professional and practical skills			
PILOs in professional and practical skills		CILOs in professional and practical skills	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
C5-	Conduct research studies and utilize the results in different pharmaceutical fields.	c1-	Identify the gross morphology of visible parasite.
		c2-	Properly use light microscope for morphologic identification of parasite stages.
Teaching and Assessment Methods for Achieving Learning Outcomes			
Alignment of learning outcomes of professional and practical skills to teaching and assessment methods:			
CILOs in professional and practical skills		Teaching strategies/methods	Methods of assessment
After participating in the course, students would be able to:		<ul style="list-style-type: none"> Laboratory demonstration and practice Video tutorials 	<ul style="list-style-type: none"> Practical quizzes Logbooks and reports Mid-semester and final exams
c1-	Identify the gross morphology of visible parasite.		
c2-	Properly use light microscope for morphologic identification of parasite stages.		

(D) General and Transferable Skills			
Alignment of course intended-learning outcomes (CILOs) to program-intended learning outcomes (PILOs) in general and transferable skills			
PILOs in general and transferable skills		CILOs in general and transferable skills	
After completing this program, students would be able to:		After participating in the course, students would be able to:	
D3-	Develop financial, market management, writing, presentation and time management skills as well as creativity, critical thinking, problem solving and decision making abilities.	d1-	Efficiently use computer and internet to gather information and gain knowledge.
D5-	Apply information and communication technology and working effectively in a team.	d2-	Work independently or collaboratively to prepare seminars/ presentations or write reports.



		d3-	Effectively use internet resources to search for up-to-date information to solve emerging problems.
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Teaching and Assessment Methods for Achieving Learning Outcomes

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods:

CILOs in general and transferable skills		Teaching strategies/methods	Methods of assessment
After participating in the course, students would be able to:			
d1-	Efficiently use computer and internet to gather information and gain knowledge.	<ul style="list-style-type: none"> • Presentations and seminars • Group discussions • Self-study modules 	<ul style="list-style-type: none"> • Assessment worksheets • Portfolios
d2-	Work independently or collaboratively to prepare seminars/ presentations or write reports.		
d3-	Effectively use internet resources to search for up-to-date information to solve emerging problems.		

IX. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	Introduction To Medical Parasitology	a1; b1; d1–d3	<ul style="list-style-type: none"> - Definitions and concepts - Types of parasites, hosts and vectors. - Parasite life cycles - Classification of medically important parasites 	1	1



2	Parasitic Amoebae	a1, a2; b1, b2; d1-d3	- <i>Entamoeba histolytica</i> - <i>E. coli</i>	1	1
3	Pathogenic Free-Living Amoebae	a1, a2; b1, b2; d1-d3	- <i>Acanthameba</i> species - <i>Naegleria fowleri</i>	1	1
4	Luminal Flagellates	a1-a3; b1, b2; d1-d3	- <i>Giardia lamblia</i> - <i>Dientamoeba fragilis</i> - <i>Trichomonas vaginalis</i>	1	1
5	Blood and Tissue Flagelates	a1-a3; b1, b2; d1-d3	- <i>Leishmania</i> species causing cutaneous, mucocutaneous and visceral leishmaniasis. - African trypanosomes - <i>Trypanosoma cruzi</i>	1	1
6	Coccidian Parasites	a1-a3; b1, b2; d1-d3	- <i>Toxoplasma gondii</i> - <i>Cryptosporidium</i> species - <i>Cyclospora cayetenesis</i> - <i>Cystoisospora belli</i>	1	1
7	Mid-semester Exam	a1-a3	-----	1	1
8	Malaria Parasites	a1-a3; b1, b2; d1-d3	- <i>Plasmodium falciparum</i> - <i>P. vivax</i> - <i>P. ovale</i> - <i>P. malariae</i>	1	1
9	Blood and Liver Flukes	a1-a3; b1, b2; d1-d3	- <i>Schistosoma haematobium</i> - <i>S. mansoni</i> - <i>Fasciola hepatica</i>	1	1
10	Cestodes	a1-a3; b1, b2; d1-d3	- <i>Taenia saginata</i> - <i>Taenia solium</i> - <i>Hymenolepis nana</i> - <i>Echinococcus granulosus</i>	2	2
11	Intestinal Nematodes	a1, a2; b1, b2; d1-d3	- <i>Ascaris lumbricoides</i> - <i>Trichuris trichiura</i> - <i>Ancylostoma duodenale</i> - <i>Strongyloides stercoralis</i>	2	2



			- <i>Enterobius vermicularis</i>		
12	Tissue Nematodes	a1-a3; b1, b2; d1-d3	- <i>Wuchereria bancrofti</i> - <i>Onchocerca volvulus</i> - <i>Dracunculus medinensis</i>	1	1
13	Revision				
14	Final exam	a1-a3	-----	1	1
Number of Weeks /and Contact Hours per Semester				16	32

b - Practical Aspect				
Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	<ul style="list-style-type: none"> <i>E. histolytica & E. coli</i> - Slide spots of trophozoites and cysts. 	c1, c2	1	2
2	<ul style="list-style-type: none"> <i>G. lamblia & T. vaginalis</i> - Slide spots of <i>G. lamblia</i> trophozoite and cyst. - Slide spot of <i>T. vaginalis</i> trophozoite. 	c1, c2	1	2
3	<ul style="list-style-type: none"> <i>Leishmania species & Trypanosoma species</i> - Slide spots of <i>Leishmania</i> species amastigote and promastigote and <i>Trypanosoma</i> species trypomastigotes. 	c1, c2	1	2
4	<ul style="list-style-type: none"> <i>P. falciparum & P. vivax</i> - Blood smears of erythrocytic stages of malaria parasites (ring stages, trophozoites, schizonts and gametocytes) 	c1, c2	1	2
5	<ul style="list-style-type: none"> <i>S. mansoni & S. haematobium</i> - Slide spots of adult worms and eggs. - Shells of snail intermediate hosts. 	c1, c2	1	2
6	<ul style="list-style-type: none"> <i>T. saginata & T. solium</i> - Jar specimens of adult worms and their body parts. - Slide spots of scolices, segments (immature, mature and gravid) and egg. 	c1, c2	1	2



7	Mid-semester exam	c1, c2	1	2
8	<ul style="list-style-type: none"> • <i>H. nana</i> & <i>E. granulosus</i> <ul style="list-style-type: none"> - Slide spots of adult worms, scolices, segments (immature, mature and gravid) and eggs. - Jar specimens of hydatid cysts (different sizes). - 	c1, c2	1	2
10	<ul style="list-style-type: none"> • <i>A. lumbricoides</i> <ul style="list-style-type: none"> - Jar specimens of male and female adult worms. - Slide spots of eggs. 	c1, c2	1	2
11	<ul style="list-style-type: none"> • <i>T. trichiura</i> & <i>Ancylostoma duodenale</i> <ul style="list-style-type: none"> - Slide spots of male and female adults and egg. 	c1, c2	1	2
12	<ul style="list-style-type: none"> • <i>E. vermicularis</i> <ul style="list-style-type: none"> - Slide spots of male and female adult worms and egg. 	c1, c2	1	2
13	<ul style="list-style-type: none"> • <i>W. bancrofti</i> & <i>O. volvulus</i> <ul style="list-style-type: none"> - Slide spots of <i>W. bancrofti</i> and <i>O. volvulus</i> microfilariae. 	c1, c2	1	2
14	<ul style="list-style-type: none"> • Final review 	c1, c2	2	4
15	<ul style="list-style-type: none"> • Final exam 	c1, c2	1	2
Number of Weeks / Contact Hours per Semester			16	32

2- Teaching strategies of the course

- Presentations and tutorials
- Discussion-oriented and interactive teaching
- Group discussions
- Self-study modules
- Laboratory demonstrations and practice



3-Assignments

- Quizzes and oral tests.
- Theoretical and practical mid-semester exams.
- Laboratory logbooks and reports.
- Final exams.

4-Schedule of Assessment Tasks for Students During the Semester

Assessment of Theoretical Part

No.	Assessment method	Week due	Mark	Proportion of final assessment	CILOs
1	Attendance, Participation and quizzes	---	10	10%	a1-a3; b1, b2; d1-d3
	Attendance and practical reports	All weeks	15	15%	c1, c2
2	Practical mid-semester exam	7 th	15	15%	c1, c2
3	Theoretical mid-semester exam	8 th	10	10%	a1-a3
4	Final Exam (theoretical)	---	30	30%	a1-a3
5	Final Exam (practical)	----	20	20%	c1, c2
Total			100	100%	

XX. Students' Support:

Office Hours/week	Other Procedures (if any)
Two contact hours per week	None

XXI. Learning Resources:

66- Required Textbook(s) (maximum two)

- 1- Ridley JW (2012). Parasitology for Medical and Clinical Laboratory Professionals. Delmar Cengage Learning.

67- Recommended Readings and Reference Materials



	2- Paniker CKJ (2007). Textbook of Medical Parasitology . 6 th ed. New Delhi: Jaypee Brothers.
68- Essential References	
	1- Bogitsh BJ, Carter CE, Oeltmann TN (2013). Human Parasitology . 12 th ed. Oxford: Academic Press, Elsevier.
69- Electronic Materials and Web Sites, etc.	
	1- CDC -Parasites (http://www.cdc.gov/parasites/).
70- Other Learning Materials	
	1- Educational videos 2- Fixed microscope slides

XXII. Facilities Required:

1 - Accommodation:	<ul style="list-style-type: none"> - Well-equipped lecture halls with data show facilities, whiteboards, etc. - Well-equipped laboratories with all required equipment and slide.
2 - Computing resources:	<ul style="list-style-type: none"> - Computer laboratory with internet facilities.

XXIII. Course Improvement Processes:

1- Strategies for obtaining student feedback on effectiveness of teaching	
	<ul style="list-style-type: none"> ▪ Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester. ▪ Meeting with students and faculty (once per semester).
2- Other Strategies for Evaluation of Teaching by the Instructor or by the Department.	
	<ul style="list-style-type: none"> ▪ Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester. ▪ Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).
3- Processes for Improvement of Teaching.	
	<ul style="list-style-type: none"> ▪ Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions.



	<ul style="list-style-type: none"> Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.
4- Processes for Verifying Standards of Students' Achievement	
	<ul style="list-style-type: none"> Checking of a sample of students' work by an independent faculty member. Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution. Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments). Regular follow-up of laboratory logbooks to assess the practical achievement of students.
5- Procedures for Periodically Reviewing of Course Effectiveness and Planning for Improvement	
	<ul style="list-style-type: none"> Student rating and feedback Peer rating and feedback Regular meeting of the Curriculum Committee of the faculty.
6- Course Development Plans	
	<ul style="list-style-type: none"> Conducting regular workshops for the staff for improving their course specification skills. Regular revision of course specification and syllabus items.

XI. Course Policies:	
1	Class Attendance: <ul style="list-style-type: none"> Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.
2	Tardy: <ul style="list-style-type: none"> Non-reasonable frequent tardiness will not be allowed and is considered as absence from the lectures/
3	Exam Attendance/Punctuality: <ul style="list-style-type: none"> Exam attendance is obligatory unless being excused by the department and faculty. Absence from assignments or exams will be dealt with according to the general policy of the university.
4	Assignments & Projects: <ul style="list-style-type: none"> Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator. Projects: Not applicable.
5	Cheating: <ul style="list-style-type: none"> Punishment of cheating will be according to the general policy of the university in this respect.



6	Plagiarism: <ul style="list-style-type: none"> Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.
7	Other policies: <ul style="list-style-type: none"> General policies of the Students' Affairs of the University and the Quality Assurance Unit.

Course Plan of Medical Parasitology

LIII- Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Associate prof. Rashad Abdul-Ghani	Office Hours					
Location & Telephone No.		SAT	SUN	MON	TUE	WED	THU
E-mail							

LIV- Course Identification and General Information:						
88-	Course Title:	Medical Parasitology				
89-	Course Number & Code:	Ph653				
90-	Credit hours:	C.H				Total
		Th.	Seminar	Pr.	F. Tr.	
		2	-	2		3
91-	Study level/year at which this course is offered:	3 rd level /2 nd semester				
92-	Pre –requisite (if any):	General Pharmaceutical chemistry, Pharmaceutical analytical chemistry I&II and pharmaceutical organic chemistry I, II& III				
93-	Co –requisite (if any):	-				
94-	Program (s) in which the course is offered	Bachelor of pharmacy				
95-	Language of teaching the course:	English				
96-	System of Study:	Semesters				



97-	Mode of delivery:	Regular
98-	Location of teaching the course:	Faculty of Pharmacy- Sana`a university

LV- Course Description:

This course aims to provide pharmacy students with the essential information about the different types of protozoan and helminthic parasites and the parasitic diseases. It focuses on the morphologic and infective stages of parasites, their life cycle and mode(s) of transmission, pathogenesis and clinical features, diagnosis, treatment, and prevention and control of parasitic diseases.

LVI- Intended Learning Outcomes (ILOs) of the Course

At the end of this course, the students will be able to:

11. Outline medically important parasites and parasitic diseases.
12. Describe the distribution, morphology, life cycle, infective stages, hosts, mode(s) of transmission, pathogenesis and clinical features, diagnosis, best therapeutic approaches and prevention and control of parasitic diseases.
13. Recognize zoonotic and vector-borne parasitic infections and their impact on human health.
14. Propose best approaches to prevent and control of parasitic infections prevalent in Yemen.
15. Propose the best cost-effective therapeutic approaches to the control of parasitic diseases prevalent in Yemen.
16. Identify the gross morphology of visible parasite.
17. Properly use light microscope for morphologic identification of parasite stages.
18. Efficiently use computer and internet to gather information and gain knowledge.
19. Work independently or collaboratively to prepare seminars/ presentations or write reports.
20. Effectively use internet resources to search for up-to-date information to solve emerging problems.

LVII- Course Content:

1 – Course Topics/Items:



a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Week Due	Contact hours
1	Introduction to Medical Parasitology	a1; b1; d1-d3	- Definitions and concepts - Types of parasites, hosts and vectors. - Parasite life cycles - Classification of medically important parasites	1	1
2	Parasitic Amoebae	a1, a2; b1, b2; d1-d3	- <i>Entamoeba histolytica</i> - <i>E. coli</i>	2	1
3	Pathogenic Free-Living Amoebae	a1, a2; b1, b2; d1-d3	- <i>Acanthameba</i> species - <i>Naegleria fowleri</i>	3	1
4	Luminal Flagellates	a1-a3; b1, b2; d1-d3	- <i>Giardia lamblia</i> - <i>Dientamoeba fragilis</i> - <i>Trichomonas vaginalis</i>	4	1
5	Blood And Tissue Flagelates	a1-a3; b1, b2; d1-d3	- <i>Leishmania</i> species causing cutaneous, mucocutaneous and visceral leishmaniasis. - African trypanosomes - <i>Trypanosoma cruzi</i>	5	1
6	Coccidian Parasites	a1-a3; b1, b2; d1-d3	- <i>Toxoplasma gondii</i> - <i>Cryptosporidium</i> species - <i>Cyclospora cayetenesis</i> - <i>Cystoisospora belli</i>	6	1
7	Mid-Semester Exam	a1-a3	-----	7	1
8	Malaria Parasites	a1-a3; b1, b2; d1-d3	- <i>Plasmodium falciparum</i> - <i>P. vivax</i> - <i>P. ovale</i> - <i>P. malariae</i>	8	1



9	Blood and Liver Flukes	a1-a3; b1, b2; d1-d3	- <i>Schistosoma haematobium</i> - <i>S. mansoni</i> - <i>Fasciola hepatica</i>	9	1
10	Cestodes	a1-a3; b1, b2; d1-d3	- <i>Taenia saginata</i> - <i>Taenia solium</i> - <i>Hymenolepis nana</i> - <i>Echinococcus granulosus</i>	10,11	2
11	Intestinal Nematodes	a1, a2; b1, b2; d1-d3	- <i>Ascaris lumbricoides</i> - <i>Trichuris trichiura</i> - <i>Ancylostoma duodenale</i> - <i>Strongyloides stercoralis</i> - <i>Enterobius vermicularis</i>	12,13	2
12	Tissue Nematodes	a1-a3; b1, b2; d1-d3	- <i>Wuchereria bancrofti</i> - <i>Onchocerca volvulus</i> - <i>Dracunculus medinensis</i>	14	1
13	Revision			15	1
14	Final Exam	a1-a3	-----	16	1
Number of Weeks /and Contact Hours per Semester				16	32

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Week Due	Contact Hours
1	<ul style="list-style-type: none"> <i>E. histolytica</i> & <i>E. coli</i> - Slide spots of trophozoites and cysts. 	c1, c2	1	2
2	<ul style="list-style-type: none"> <i>G. lamblia</i> & <i>T. vaginalis</i> - Slide spots of <i>G. lamblia</i> trophozoite and cyst. - Slide spot of <i>T. vaginalis</i> trophozoite. 	c1, c2	2	2
3	<ul style="list-style-type: none"> <i>Leishmania</i> species & <i>Trypanosoma</i> species - Slide spots of <i>Leishmania</i> species amastigote and promastigote and <i>Trypanosoma</i> species trypomastigotes. 	c1, c2	3	2
4	<ul style="list-style-type: none"> <i>P. falciparum</i> & <i>P. vivax</i> - Blood smears of erythrocytic stages of malaria parasites (ring stages, trophozoites, schizonts and 	c1, c2	4	2



	gametocytes)			
5	<ul style="list-style-type: none"> • <i>S. mansoni</i> & <i>S. haematobium</i> - Slide spots of adult worms and eggs. - Shells of snail intermediate hosts. 	c1, c2	5	2
6	<ul style="list-style-type: none"> • <i>T. saginata</i> & <i>T. solium</i> - Jar specimens of adult worms and their body parts. - Slide spots of scolices, segments (immature, mature and gravid) and egg. 	c1, c2	6	2
7	Mid-semester exam	c1, c2	7	2
8	<ul style="list-style-type: none"> • <i>H. nana</i> & <i>E. granulosus</i> - Slide spots of adult worms, scolices, segments (immature, mature and gravid) and eggs. - Jar specimens of hydatid cysts (different sizes). - 	c1, c2	8	2
10	<ul style="list-style-type: none"> • <i>A. lumbricoides</i> - Jar specimens of male and female adult worms. - Slide spots of eggs. 	c1, c2	9	2
11	<ul style="list-style-type: none"> • <i>T. trichiura</i> & <i>Ancylostoma duodenale</i> - Slide spots of male and female adults and egg. 	c1, c2	10	2
12	<ul style="list-style-type: none"> • <i>E. vermicularis</i> - Slide spots of male and female adult worms and egg. 	c1, c2	11	2
13	<ul style="list-style-type: none"> • <i>W. bancrofti</i> & <i>O. volvulus</i> - Slide spots of <i>W. bancrofti</i> and <i>O. volvulus</i> microfilariae. 	c1, c2	12	2
14	<ul style="list-style-type: none"> • Final review 	c1, c2	13,14	4
15	<ul style="list-style-type: none"> • Final exam 	c1, c2	15	2
Number of Weeks / Contact Hours per Semester			16	32



3- Teaching strategies of the course

- Presentations and tutorials
- Discussion-oriented and interactive teaching
- Group discussions
- Self-study modules
- Laboratory demonstrations and practice

3-Assignments

- Quizzes and oral tests.
- Theoretical and practical mid-semester exams.
- Laboratory logbooks and reports.
- Final exams.

4-Schedule of Assessment Tasks for Students During the Semester

Assessment of Theoretical Part

No.	Assessment method	Week due	Mark	Proportion of final assessment	CILOs
1	Attendance, Participation and quizzes	---	10	10%	a1-a3; b1, b2; d1-d3
	Attendance and practical reports	All weeks	15	15%	c1, c2
2	Practical mid-semester exam	7 th	15	15%	c1, c2
3	Theoretical mid-semester exam	8 th	10	10%	a1-a3
4	Final Exam (theoretical)	---	30	30%	a1-a3
5	Final Exam (practical)	----	20	20%	c1, c2
Total			100	100%	

LVIII- Students' Support:

Office Hours/week	Other Procedures (if any)
Two contact hours per week	None



LIX- Learning Resources:

71- Required Textbook(s) (maximum two)

3- Ridley JW (2012). **Parasitology for Medical and Clinical Laboratory Professionals**. Delmar Cengage Learning.

72- Recommended Readings and Reference Materials

4- Paniker CKJ (2007). **Textbook of Medical Parasitology**. 6th ed. New Delhi: Jaypee Brothers.

73- Essential References

2- Bogitsh BJ, Carter CE, Oeltmann TN (2013). **Human Parasitology**. 12th ed. Oxford: Academic Press, Elsevier.

74- Electronic Materials and Web Sites, etc.

2- CDC -Parasites (<http://www.cdc.gov/parasites/>).

75- Other Learning Materials

- 3- Educational videos
- 4- Fixed microscope slides

LX- Facilities Required:

1 - Accommodation:

- Well-equipped lecture halls with data show facilities, whiteboards, etc.
- Well-equipped laboratories with all required equipment and slide.

2 - Computing resources:

- Computer laboratory with internet facilities.

LXI- Course Improvement Processes:

6- Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Student-based assessment of the effectiveness of teaching using a questionnaire designed by the Quality Assurance Unit at the end of the semester.



	<ul style="list-style-type: none"> Meeting with students and faculty (once per semester).
7- Other Strategies for Evaluation of Teaching by the Instructor or by the Department.	
	<ul style="list-style-type: none"> Assessment of the course syllabus and contents by the teachers using a questionnaire designed by the Quality Assurance Unit of the university at the end of the semester. Regular meeting and discussion of the course content between the Head of Department and the teaching staff of the course (for theory and practice).
8- Processes for Improvement of Teaching.	
	<ul style="list-style-type: none"> Revision of the course specification and its teaching strategies every three academic years after consideration of all issues raised by the teachers and/or students during regular meetings and discussions. Exploring any possible defects in the course that might be encountered by the teaching staff and their mitigation in subsequent improved versions of course specification.
9- Processes for Verifying Standards of Students' Achievement	
	<ul style="list-style-type: none"> Checking of a sample of students' work by an independent faculty member. Periodic exchange and check marking of a sample of students' assignments with a faculty member from another institution. Adoption of scoring rubrics to assess the students' achievement (both for ongoing or summative assessments). Regular follow-up of laboratory logbooks to assess the practical achievement of students.
10- Procedures for Periodically Reviewing of Course Effectiveness and Planning for Improvement	
	<ul style="list-style-type: none"> Student rating and feedback Peer rating and feedback Regular meeting of the Curriculum Committee of the faculty.
6- Course Development Plans	
	<ul style="list-style-type: none"> Conducting regular workshops for the staff for improving their course specification skills. Regular revision of course specification and syllabus items.

XII. Course Policies:	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> Attendance of all lectures and practical sessions is required. Unexcused absence exceeding 25% of the lectures or practical sessions will disqualify the student from entering the final exam.



2	Tardiness: <ul style="list-style-type: none">Non-reasonable frequent tardiness will be allowed and is considered as absence from the lectures/
3	Exam Attendance/Punctuality: <ul style="list-style-type: none">Exam attendance is obligatory unless being excused by the department and faculty.Absence from assignments or exams will be dealt with according to the general policy of the university.
4	Assignments & Projects: <ul style="list-style-type: none">Assignments: Written and oral; Laboratory logbook signed by the responsible demonstrator.Projects: Not applicable.
5	Cheating: <ul style="list-style-type: none">Punishment of cheating will be according to the general policy of the university in this respect.
6	Plagiarism: <ul style="list-style-type: none">Plagiarism in written essays, reports, etc. is not accepted, and students who plagiarize the works of others will be punished according to the general policy of the university.
7	Other policies: <ul style="list-style-type: none">General policies of the Students' Affairs of the University and the Quality Assurance Unit.