



المركز الوطني للتقويم والاعتماد الأكاديمي  
National Center for Academic Accreditation and Evaluation

## **ATTACHMENT 5.**

# **T6. COURSE SPECIFICATIONS (CS)**

## Course Specifications

Institution: <b>University of Tabuk</b>	Date: 19/04/2019
College/Department : <b>Science / Biology</b>	

### A. Course Identification and General Information

1. Course title and code: <b>Animal Micro technique (BIO356)</b>		
2. Credit hours: 3		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) <b>Biology</b>		
4. Name of faculty member responsible for the course:		
5. Level/year at which this course is offered: Level 6		
6. Pre-requisites for this course (if any): General Zoology 2(BIO 351)		
7. Co-requisites for this course (if any): None		
8. Location if not on main campus: N.A.		
9. Mode of Instruction (mark all that apply):		
a. traditional classroom	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="75"/>
b. blended (traditional and online)	<input type="checkbox"/> What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/> What percentage?	<input type="text"/>
d. correspondence	<input type="checkbox"/> What percentage?	<input type="text"/>
f. other (Lab work)	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="25"/>
Comments:		

## B Objectives

1. What is the main purpose for this course?

**Student should have a clear concept of the following**

- Preparing different types of chemical fixatives
- Identifying steps used in animal micro-techniques and staining slides
- Light Microscope and their techniques
- Electron Microscope and their techniques

Animal tissues samples preparation of electron microscopy (TEM&SEM)

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Course planning committee reviews the contents of the course annually.
- Updating the course with latest research in the field.
- Annual review and updating practical sessions with new experiments and new preparations.
- Use of Internet Search on the subject.
- Comparison of course topics with equivalent local and international courses.

## C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

- The course covers topics on chemical fixatives, different types of microscopes and their uses in Animal Micro-techniques, steps of histological methods and techniques; dehydration, clearing, embedding, sectioning, staining and different types of microtomes.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Fixatives: Advantages & Disadvantages	1	3
Light Microscopy and Animal Micro-techniques	1	3
Transmission Electron Microscope	1	3
Transmission Electron Microscope and Techniques	1	3
Scanning Electron Microscope and its techniques	1	3
Dehydrating agents and methods	1	3
Clearing and Embedding	1	3
<b>Revision and PreFinal Exam</b>		
<b>Mid Term Vacation</b>		
Preparatory method techniques of animal and plant tissues	1	3
General principals of sectioning technique	1	3
Different types of microtomes	1	3
Sectioning method	1	3

Chemical basis of Stains	1	3
Staining, whole mount. Revision	1	3
<b>Final Exam</b>		

2. Course components (total contact hours and credits per semester):

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planned	26			26		52
	Actual	26			26		52
Credit	Planned	2			1		3
	Actual	2			1		3

3. Additional private study/learning hours expected for students per week. 8

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.– 2 Exams 2<sup>nd</sup> and 4<sup>th</sup> Month
- Written Papers about the Various Aspects of the Course

**On the table below are the five NQF Learning Domains, numbered in the left column.**

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Define and describe the microscopy	Able to memorize the terminology	In class short MCQs quizzes (orally and written) Major and final exams
1.2	Dealing with Light Microscopy, applications and	Able to tell and write	Web site and

	operations	their own ideas about the Animal Sample	computer assisted learning
1.3	Recognize the structures of compound microscope pictures, Knowing how to prepare samples and reagents for TEM and SEM	In-class lecturing where the previous knowledge is linked to the current and future topics Weekly Tutorial discussions	
<b>2.0</b>	<b>Cognitive Skills :</b>		
2.1	Differentiate the different parts of microscope Explain the proper usage of the Light Microscope.	Encouraging student to discuss, summarize and plan what they learned and able to explain	In class short MCQs Diagram representation and quizzes
2.2	Summarize and operational requirements of Light and Electron Microscope.	Oral Quiz in each lecture Problem solving in the lecture	Major and final exams Checking the problems solved in the lecture
2.3	Develop to identify the microtome knives Training the necessary skills of making a tissue samples	Oral Quiz in each lecture Problem solving in the lecture	Major and final exams Checking the problems solved in the lecture
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	Demonstrate and develop interpersonal skill Improve student acceptance skill from other during discussion. Work independently and as part of a team.	Analyze through discussion skill tutorial sessions	Evaluate through or and written questions quiz
3.2	Manage and calculate resources, time and other members of the group, Write results of work to others	Analyze through group experiments and writing group reports.	Manage and calculate resources, time and other members of the group, Write results of work to others
3.3	Ability to communicate results of work to others.	Student's ability to interpret various histological features	
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Demonstration and use of internet and specifically MS office	Demonstrate the use and operation of computer in the course requirements	In class short MCQs quizzes (orally and written)
4.2	Illustrate the use of new tools in technology, Use the computer for following up the latest in animal sample and research		Asses through major and final exams

4.3	Enable students to work in a team to conduct a specific project. Enable students to search and discuss. Enable students to discuss abnormal structure of histological sections		
<b>5.0</b>	<b>Psychomotor: NOT APPLICABLE</b>		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz	<b>3</b>	<b>10%</b>
2	Mid-term lab Exam	<b>8</b>	<b>10%</b>
3	Final lab Exam	<b>15</b>	<b>15%</b>
4	Midterm Theory Exam	<b>8</b>	<b>25%</b>
5	Final Theory Exam	<b>16</b>	<b>40%</b>

#### D. Student Academic Counseling and Support

<p>1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)</p> <ul style="list-style-type: none"> <li>• Office hours 8 hr/week</li> <li>• Help sessions 1hr/week aided by two faculty members</li> </ul>
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#### E Learning Resources

1. List Required Textbooks Al-Khalifa, M. S. and Al-Saleh, A. A. (2008). "Microscopes and their Technology" Scientific Publications King Saud University pp 378
2. List Essential References Materials (Journals, Reports, etc.) Not Applicable
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Websites on the internet that are relevant to the topics of the course
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Multi-media associated with the textbook and the relevant websites

#### F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access, etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)  Available laboratory accommodate up to 30 students.

2. Technology resources (AV, data show, Smart Board, software, etc.)

Well-equipped lab and lecture room with computers and display screens installed with curtains on the windows are required.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) : None

## G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation by student
- Students-faculty meetings

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Peer consultation on teaching
- Departmental council discussions
- Discussions within the group of faculty teaching the course

3. Processes for Improvement of Teaching

- Conducting workshops given by experts on the teaching and learning methodologies
- Periodical departmental revisions of its methods of teaching
- Monitoring of teaching activates by senior faculty members

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Providing samples of all kind of assessment in the departmental course portfolio of each course
- Assigning group of faculty members teaching the same course to grade same questions for various students. Faculty from other institutions are invited to review the accuracy of the grading policy

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.
- The head of department and faculty take the responsibility of implementing the proposed changes

Name of Course Instructor: Dr. Panneerselvam Chellasamy

Signature:



Date Specification Completed: 19/04/2019

Program Coordinator: **Dr. Omar Salem Obeid Bahattab**

Signature: *Omar Bahattab*

Date Received: 16/8/1440