

T6. Course Specification (CS) توصيف المقرر

Institution:- <i>Najran University.</i>	Date of Report:- <i>22/8/1438 H.</i>
College/Department:- <i>College of applied medical sciences/ Department of Clinical laboratory Sciences.</i>	

A. Course Identification and General Information

1.Course title and code:- <i>Clinical chemistry (3-كل426) (ممارسة الكلينيكية) كيمياء الكلينيكية 3-كل426</i>			
2. Credit hours: - <i>3(1+2).</i>			
3. Program in which the course is offered: - <i>Medical laboratory Sciences.</i>			
4. Name of faculty member responsible for the course: - <i>Dr .Omer Mohamed Shoaib.</i>			
5. Level/year at which this course is offered: - <i>level 8/ 4nd year.</i>			
6. Pre-requisites for this course: - <i>Introduction to biochemistry, clinical chemistry I, clinical chemistry II and clinical chemistry IV</i>			
7. Co-requisites for this course: - <i>None.</i>			
8. Location: - <i>Main university campus in Najran</i>			
9. Mode of Instruction :-			
a. Traditional classroom	<input type="text" value="/"/>	What percentage?	<input type="text" value="100"/>
b. Blended (traditional and online)	<input type="text"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="text"/>	What percentage?	<input type="text"/>
d. Correspondence	<input type="text"/>	What percentage?	<input type="text"/>
f. Other	<input type="text"/>	What percentage?	<input type="text"/>
Comments:- <i>No comment.</i>			

B Objectives

<p>1. What is the main purpose for this course?</p> <p>Upon successful completion of this course the students are expected to:-</p> <ol style="list-style-type: none"> 1. Define the steps of phlebotomy and preparations precautions required. 2. Understand the different types of waste and their disposal mechanisms. 3. Describe the role of practitioner in the work group and his duties. 4. Understand the different blood tubes color codes and their correct uses. 5. Collect blood sample, measure the different biochemical components and calculate them. 6. Correlate between the practical session and the theoretical concepts.
<p>2. Briefly describe any plans for developing and improving the course that are being implemented:</p> <ol style="list-style-type: none"> 1. Verifying the information resources. 2. Continuous improvements in teaching methods to encourage the students to participate effectively in the lectures. 3. Continuous evaluation of the course content, student level and establish plans accordingly.

C. Course Description:-

The course covers basis of laboratory types and staff, phlebotomy, blood collection and collection tubes, types of samples and the sources of expected errors, waste types and collection s, professionalism, cardiac markers and practical Spectrophotometric measurement for different biochemical tests.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
<i>Introduction to course</i>	<i>1</i>	<i>2</i>
<i>Laboratory and laboratory common tests.</i>	<i>1</i>	<i>2</i>
<i>Organization of laboratories</i>	<i>1</i>	<i>2</i>

<i>Phlebotomy</i>	<i>3</i>	<i>6</i>
<i>The results</i>	<i>1</i>	<i>1</i>
<i>Waste disposal and management</i>	<i>2</i>	<i>4</i>
<i>Professionalism</i>	<i>2</i>	<i>4</i>
<i>Cardiac markers – Troponin</i>	<i>1</i>	<i>1</i>
<i>Cardiac markers- Lactatedehydrogenase</i>	<i>1</i>	<i>1</i>
<i>Cardiac markers- Aspartate transaminase</i>	<i>1</i>	<i>2</i>
<i>Cardiac markers- Creatine kinase</i>	<i>1</i>	<i>2</i>
<i>Cardiac markers- Myoglobin</i>	<i>1</i>	<i>2</i>
<i>Total</i>	<i>15</i>	<i>30</i>

PRACTICALS		
<i>Laboratory safety measures</i>	<i>1</i>	<i>2</i>
<i>Organization of laboratories</i>	<i>2</i>	<i>4</i>
<i>Phlebotomy</i>	<i>3</i>	<i>6</i>
<i>Laboratory and laboratory common tests</i>	<i>1</i>	<i>2</i>

<i>The results</i>	2	4
<i>Waste disposal and management</i>	2	4
<i>Cardiac markers- Aspartate transaminase</i>	2	4
<i>Cardiac markers – Troponin</i>	1	2
Total	15	30

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	16	-	64	-	-	80
Credit	1	-	2	-	-	3

3. Additional private study/learning hours expected for students per week.	<input type="text"/>
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The **National Qualification Framework** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

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. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	<p>By the end of the course the student is expected to:-</p> <p><i>State the different types of blood and body fluid samples and site of collection.</i></p> <p><i>Define the methods used in analysis and cardiac markers.</i></p> <p><i>Tell the patient what is the volume of the sample needed for the test.</i></p>	<ol style="list-style-type: none"> <i>Interactive lectures using data show(power point presentation)</i> <i>Practical session at the biochemistry laboratory.</i> <i>Results discussion and comments on them.</i> <i>Direct student contact at office.</i> 	<ol style="list-style-type: none"> <i>MCQ.</i> <i>Log Book.</i> <i>Assignments</i>
1.2	<p><i>Describe the general mechanisms for the regulation and protocols of samples collection.</i></p> <p><i>Describe the procedure of waste disposing and management.</i></p>	<i>As above</i>	<i>AS above</i>
2.0	Cognitive Skills		
2.1	<p>By the end of this course students should:-</p> <p><i>Differentiate between the different colour coded tubes and their use.</i></p> <p><i>Differentiate between waste types and waste boxes.</i></p> <p><i>Measure the biomolecules according to the method.</i></p>	<ol style="list-style-type: none"> <i>Open discussion.</i> <i>Assignments</i> <i>Lectures</i> <i>Practicals</i> 	<ol style="list-style-type: none"> <i>Class quizzes.</i> <i>Assignments.</i> <i>MCQ</i>
2.2	<i>Relate some clinical results to the defects or various</i>	<i>As above</i>	<i>As above</i>

	sampling error and predict the causes.		
3.0	Interpersonal Skills & Responsibility		
3.1	By the end of this course students should:- <i>Demonstrate ethical behavior & good professionalism</i>	1. Practical sessions 2. Small group discussion in the lab 3. Writing assignment.	1. Practical exam. 2. Written exam. 3. Assignment.
3.2	Evaluate different laboratory tests regarding specific clinical conditions.	AS above	AS above
4.0	Communication, Information Technology, Numerical		
4.1	By the end of this course, students should be able to:- Demonstrate ability to communicate effectively with their laboratory staff and patients.	1. Practical sessions. 2. Small group discussion.	1. Practical exam.
4.2	<i>Illustrate and schedule the pathway for samples collection and results delivery.</i>	As above	As above
5.0	Psychomotor		
5.1	By the end of this course students should be able to:- <i>Show good ability of blood samples collection, separation, pipetting, mixing solutions and deal with waste products.</i>	1. Practical sessions.	1. Practical exam.
5.2	<i>Operate spectrophotometers, centrifuges and other instruments and devices used.</i>	As above	As above

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize

Psychomotor

demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

4. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1.	<i>Midterm practical exam.</i>	<i>7th</i>	<i>20%</i>
2.	<i>Midterm theoretical exam.</i>	<i>7th</i>	<i>10%</i>
3.	<i>Continuous assessment (log book).</i>	<i>13th</i>	<i>10%</i>
4.	<i>Final practical exam.</i>	<i>15th</i>	<i>40%</i>
5.	<i>Final theoretical exam.</i>	<i>16th</i>	<i>20%</i>

6.	Total marks	-----	100%
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D. Student Academic Counseling and Support

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)

8 hours

E. Learning Resources

1. List Required Textbooks:-

1. *clinical chemistry 7th edition Michael L. Bishop, Edward P ... Wilkins 2009*

2. *clinical chemistry/phlebotomy book shelf, Lippincott –Williams @ Wilkins*

1. List Essential References Materials (Journals, Reports, etc.)

1. *Saudi medical journal.*

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

1. *Clinical Chemistry in Diagnosis and Treatment – Jean F. Zilva*

2. *clinical chemistry 7th edition Michael L. Bishop, Edward P ... Wilkins 2009*

3. *clinical chemistry/phlebotomy book shelf, Lippincott –Williams @ Wilkins*

1. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

1. *Saudi digital library.*

2. *Alsevier.*

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

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.):-
<p>1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p> <p><i>Lecture rooms and laboratories are already available</i></p>
<p>2. Computing resources (AV, data show, Smart Board, software, etc.)</p> <p><i>Computers and multimedia are already available.</i></p>
<p>3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)</p> <p><i>1. This include spectrophotometer, water bath, various color coded blood tubes, different sizes adjustable pipettes, various chemical reagents and kits necessary for laboratory experiments required to be performed by students in laboratory practical secessions, different sizes test tubes, refrigerators ,incubators, blood collection tools and different waste boxes.</i></p>

G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p><i>1. Direct feedback at the end of each lecture and practical session.</i></p> <p><i>2. Written questionnaire about method of teaching and expectations of students to be achieved.</i></p>
<p>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor</p> <ul style="list-style-type: none"> - <i>Observations from colleagues.</i> - <i>Class observation by supervisors.</i> - <i>Independent assessment of standards achieved by the students.</i>
<p>3 Processes for Improvement of Teaching</p> <ul style="list-style-type: none"> - <i>Continuous updating of course contents according to the previous course report.</i> - <i>Regular meetings where problems are discussed and solutions given.</i> - <i>Workshops on teaching methods.</i>

- *Review of recommended teaching strategies.*

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)

This include ,but not limited to,-:

1. *Check & standardized exam by other seniors' department staff.*
2. *Revision of standard model answer by other seniors' department staff.*

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

Action plan for course improvement will be done according to the feedback about the course from students, other colleagues and the dean.

Faculty or Teaching Staff: - *Dr .Omer Mohamed Shoaib*



Signature:

Date Report Completed: 22/81438 H.

Received by: Dr.bandar Dean/Department Head

Signature: