



## Course Specifications

<b>Course Title:</b>	<b>Assisted Reproductive Techniques</b>
<b>Course Code:</b>	<b>373415-2</b>
<b>Program:</b>	<b>Bachelor in Clinical Laboratory Sciences; Level-6 (Program Code: 373000)</b>
<b>Department:</b>	<b>Clinical Laboratory Sciences Department</b>
<b>College:</b>	<b>College of Applied Medical Sciences</b>
<b>Institution:</b>	<b>Taif University</b>

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## A. Course Identification

<b>1. Credit hours:</b> 2 Hours (1 T + 1 P)
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 11 <sup>th</sup> Level/ Fourth Year
<b>4. Pre-requisites for this course:</b> None
<b>5. Co-requisites for this course:</b> None

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2 hours /week= 20 hours/semester	40%
2	Blended	None	0%
3	E-learning	None	0%
4	Distance learning	None	0%
5	Other	3 hours /week= 30 hours/semester	60%

## 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	20
2	Laboratory/Studio	30
3	Tutorial	N/A
4	Others (specify)	NA
	<b>Total</b>	<b>50 Hours</b>

## B. Course Objectives and Learning Outcomes

<p><b>1. Course Description</b></p> <p>This course provides a combination of theory and practical experience in the study of human reproduction. In addition to a review of male and female reproductive endocrinology, it addresses the causes of infertility, basic diagnostic tests for assessing the most common causes of infertility, and their interpretation. Furthermore, it focuses on various types of assisted reproductive technologies (ART) procedures and their clinical indications including in vitro fertilization (IVF), embryo transfer techniques, intrauterine insemination (IUI) intracytoplasmic sperm injection (ICSI), and cryopreservation of sperm, ova and embryo. A review of genetics includes information about preimplantation genetic diagnosis (PGD).</p>
<p><b>2. Course Main Objective</b></p> <p>The purpose of this course is to allow students to develop an in-depth understanding of reproductive endocrinology and infertility; recognize the role of ART in inducing pregnancy and interpret clinical data in relation to embryology and semenology.</p>

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Describe the male and female reproductive endocrine functions and its assessment methods.	K1
1.2	Recognize techniques for the collection of samples for hormone assay and the principles of their storage, handling and analysis.	K2
2	<b>Skills:</b>	
2.1	Interpret hormonal assay reports and recognize its correlation with infertility.	S2
2.2	Employ proficiency in communicating concepts, principles and information related to the course.	S4
3	<b>Values:</b>	
3.1	Demonstrate professionalism during reproductive hormonal analysis and commitment of ethics.	V1
3.2	Display responsibility towards community members through creating awareness in context of this course.	V2

### C. Course Content

#### (a) Course Content (Theory)

No	List of Topics	Contact Hours
1	<b>Gonadal maturation in male (Presentation)</b> - Hormones affecting male maturation and its disorders: - FSH - LH - Androgen	2
2	<b>Gonadal maturation in female (Presentation)</b> - Hormones affecting female maturation and its disorders: - LH - FSH - Estrogen - Progesterone and b-HCG	2
3	<b>Menstrual cycle (Presentation)</b> - Maturation of follicle - Ovulation - Fertilization	2
4	<b>Infertility (Presentation)</b> - Definition - Causes of infertility in male - Lab. diagnosis of infertility in male and semen analysis - Causes of infertility in female - Lab. Diagnosis of infertility in female	2
5	<b>Intrauterine insemination (IUI) (Presentation)</b> - Definition and history - Aim of IUI and its indication - Stimulation protocol of IUI in male and female - Lab. discipline and requirements - Donor screening - IUI technique	2

	<b>Cryopreservation (Presentation)</b> - Definition and history - Cryopreservation of sperm	2
6	- Cryopreservation of oocyte - Cryopreservation of embryo - Methods - Verification technique	
7	<b>In vitro fertilization (Presentation)</b> - Definition and history - Indication - Stimulation of IVF in male and female - Lab. requirements - Steps - Monitoring - Preimplantation Genetic Diagnosis (PGD)	2
8	<b>Intracytoplasmic sperm injection (ICSI) * (Textbook of Assisted Reproductive Techniques /Chapter 8)</b> - Definition and history - Indication - Surgical method of sperm retrieval - Non-surgical method of sperm retrieval	2
9	<b>Embryo transfer (Presentation)</b> - Introduction - Procedure	2
10	<b>Ethical dilemmas in ART (Presentation)</b>	2
<b>Total</b>		<b>20</b>

\* Required Textbook (Details on Page 7)

(b) Course Content (practical)

No	List of Topics	Contact Hours
1	<b>Samples type required in IVF and its collection (Presentation)</b> - Venous blood - Semen	3
2	<b>Measurement of gonadotropic hormones (LH and FSH) (Presentation)</b> Measurement of androgen Measurement of estrogen, progesterone,	3
3	<b>Semen analysis (part 1) * (Textbook of Assisted Reproductive Techniques /Chapter 5; Pages 50- 64)</b> Macroscopic tests	3
4	<b>Semen analysis (part 2) * (Textbook of Assisted Reproductive Techniques /Chapter 5; Pages 50- 64)</b> Microscopic tests	3
5	Measurement of urinary b- HCG (Presentation)	3
6	<b>Collection of semen and ova for IVF and its precaution In vitro fertilization (Presentation)</b>	3
7	<b>Intrauterine insemination (IUI) (Presentation)</b>	3
8	<b>Cryopreservation (Presentation)</b>	3
9	<b>Intracytoplasmic sperm injection (ICSI) * (Textbook of Assisted Reproductive Techniques /Chapter 8; Pages 103-111)</b>	3
10	<b>Embryo transfer (Presentation)</b>	3
<b>Total</b>		<b>30</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
<b>1.1</b>	Describe the male and female reproductive endocrine functions and its assessment.	<ul style="list-style-type: none"> <li>Lecture</li> </ul>	<ul style="list-style-type: none"> <li>Written Exam</li> </ul>
<b>1.2</b>	Recognize techniques for the collection of samples for hormone assay and the principles of their storage, handling and analysis.	<ul style="list-style-type: none"> <li>Lecture</li> <li>Practical Session</li> </ul>	<ul style="list-style-type: none"> <li>Written Exam</li> <li>Lab Report</li> </ul>
<b>2.0</b>	<b>Skills</b>		
<b>2.1</b>	Interpret hormonal assay reports and recognize its correlation with infertility.	<ul style="list-style-type: none"> <li>Lecture</li> <li>Practical Session</li> <li>Problem-Based Learning</li> </ul>	<ul style="list-style-type: none"> <li>Written Exam</li> <li>OSPE</li> </ul>
<b>2.2</b>	Employ proficiency in communicating concepts, principles and information related to the course.	<ul style="list-style-type: none"> <li>Group Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Scientific Activity</li> </ul>
<b>3.0</b>	<b>Values</b>		
<b>3.1</b>	Demonstrate professionalism during reproductive hormonal analysis and commitment of ethics.	<ul style="list-style-type: none"> <li>Practical Session</li> </ul>	<ul style="list-style-type: none"> <li>Practical Exam</li> </ul>
<b>3.2</b>	Display responsibility towards community members through creating awareness in context of this course.	<ul style="list-style-type: none"> <li>Service Learning</li> </ul>	<ul style="list-style-type: none"> <li>Activity</li> </ul>

### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term Exam	5 <sup>th</sup> Week	15%
2	Activity	Throughout the semester	5%
3	Practical Report	Throughout the semester	10%
4	Final Practical Exam	11 <sup>th</sup> Week	20%
5	Final Exam	12 <sup>th</sup> /13 <sup>th</sup> Week	50%
	<b>Total</b>		<b>100%</b>

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Course instructors are available for individual consultation in their free time. They are usually full-time permanent members present on-campus from 8:00 am to 2:30 pm on all working days. Appointments can be made in person with the instructor through email etc. Days and time availability of each instructor are posted on their doors. Course instructors provide a range of academic and course management advice including course planning and its progression.
- Each student at the department of Clinical Laboratory Sciences has an academic adviser who is available for individual consultation and guidance. Appointments can be made in person with the instructor through email etc. Days and time availability of each adviser are posted on their doors. The academic adviser can provide support with time management, exam preparation, clarification of subject requirements, feedback on performance and dealing with personal issues as well.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	David. K Gardner, Ariel Weissman, Colin M. Howles, Zeev Shoham, Textbook of Assisted Reproductive Techniques: Volume 1 Laboratory Perspective, 4th Edition, 2012; CRC Press, 9780429096501.
<b>Essential References Materials</b>	None
<b>Electronic Materials</b>	None
<b>Other Learning Materials</b>	Journal of Assisted Reproduction and Genetics <a href="https://www.springer.com/journal/10815/">https://www.springer.com/journal/10815/</a>

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show, Blackboard and A/V
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Microscope, centrifuge, ELISA washer and reader.

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student's feedback on effectiveness of teaching.	<ul style="list-style-type: none"> <li>Students</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester.</li> </ul>
Quality of learning resources (laboratory and library) related to each course.	<ul style="list-style-type: none"> <li>Students</li> <li>Staff members</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester related to learning resources.</li> </ul>
Evaluation of teaching	<ul style="list-style-type: none"> <li>Peer evaluators</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Peer evaluation</li> </ul>
Evaluation of exam quality and assessment.	<ul style="list-style-type: none"> <li>Exam committee</li> <li>Students</li> </ul>	<ul style="list-style-type: none"> <li><b>Direct:</b> Exam paper/ exam blueprint review</li> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester.</li> </ul>
Achievement of course learning outcomes	<ul style="list-style-type: none"> <li>Course Coordinators</li> <li>Development and accreditation committee</li> </ul>	<ul style="list-style-type: none"> <li><b>Direct:</b> Student's Performance assessed through item analysis and rubrics.</li> </ul>

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	Department Council
<b>Reference No.</b>	Meeting Number 11
<b>Date</b>	19/05/2022







## Course Specifications

<b>Course Title:</b>	<b>Clinical Practice</b>
<b>Course Code:</b>	<b>373412-3</b>
<b>Program:</b>	<b>Bachelor in Clinical Laboratory Sciences; Level-6 (Program Code: 373000)</b>
<b>Department:</b>	<b>Clinical Laboratory Sciences Department</b>
<b>College:</b>	<b>College of Applied Medical Sciences</b>
<b>Institution:</b>	<b>Taif University</b>

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<b>H. Specification Approval Data</b> .....	<b>7</b>

## A. Course Identification

<b>1. Credit hours:</b> 3 Hours
<b>2. Course type</b> a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 11 <sup>th</sup> Level/Fourth Year
<b>4. Pre-requisites for this course (if any):</b> Clinical biochemistry-1 (373320-3), Clinical Bacteriology (373322-3), Hematology (2) (373323-3), Cytopathology (373326-2)
<b>5. Co-requisites for this course (if any):</b> None

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hours /week= 30 hours/semester	50%
2	Blended	N/A	0%
3	E-learning	N/A	0%
4	Distance learning	N/A	0%
5	Other (Hospital)	3 hours /week= 30 hours/semester	50%

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	N/A
4	Others (specify)	N/A
	<b>Total</b>	<b>60</b>

## B. Course Objectives and Learning Outcomes

<p><b>1. Course Description</b>  This course provides the student with a broad understanding of the lab practical procedures. Topics include: Phlebotomy &amp; Reception, Microbiology, Parasitology, Immunology, Biochemistry, Molecular Biology, Hematology, Quality control, Hormones, Serology, Blood bank and Histopathology &amp; Cytology.</p>
<p><b>2. Course Main Objective</b>  The main purpose of this course is to make students understand the fundamentals of clinical laboratory sciences and apply theoretical knowledge and correlate it with real practical situations in laboratory testing. At the end of this course, the students should be able to demonstrate an understanding of important laboratory testing protocols and recognize the need to implement these in improving health and well-being of the community</p>

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Recognize techniques and procedures used in clinical laboratory practice.	K2
2	<b>Skills:</b>	
2.1	Apply proficiency in handling the various laboratory wares and instruments used in laboratories.	S1
2.2	Interpret signs and symptoms of diseases with laboratory findings.	S2
2.3	Perform pre-analytical, analytical and post-analytical processes efficiently in clinical laboratory setting.	S3
2.4	Utilize effective communication of concepts and principles; and problem-solving skills in clinical laboratory environment.	S4
3	<b>Values:</b>	
3.1	Demonstrate accountability in enlightening community in different areas of clinical laboratory sciences.	V2

### C. Course Content

No	List of Topics	Contact Hours
1	Phlebotomy & Reception	3
2	Microbiology and Hospital Infection Control	3
3	Parasitology	3
4	Serology & Immunology	3
5	Clinical Biochemistry and Hormones	3
6	Molecular Diagnostics	3
7	Drugs & Toxicology	3
8	Hematology	3
9	Blood Bank	3
10	Histopathology & Cytology	3
<b>Total</b>		<b>30</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	Recognize techniques and procedures used for specimen collection; and evaluate laboratory data to ensure accuracy and reliability of test results.	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Practical Sessions</li> </ul>	<ul style="list-style-type: none"> <li>• Written Exams</li> <li>• Lab Reports</li> </ul>
<b>2.0</b>	<b>Skills</b>		
2.1	Apply proficiency in handling the various laboratory wares and instruments used in laboratories.	<ul style="list-style-type: none"> <li>• Practical Sessions</li> </ul>	<ul style="list-style-type: none"> <li>• Lab Reports</li> </ul>
2.2	Interpret signs and symptoms of diseases with laboratory findings.	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Practical Sessions</li> <li>• Problem-Based Learning</li> </ul>	<ul style="list-style-type: none"> <li>• Written Exams</li> <li>• OSPE</li> </ul>
2.3	Perform pre-analytical, analytical and post-analytical processes efficiently in clinical laboratory setting.	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Practical Sessions</li> </ul>	<ul style="list-style-type: none"> <li>• Written Exams</li> <li>• Practical Exams (Hospital Visit)</li> </ul>
2.4	Utilize effective communication of concepts and principles; and problem-solving skills in clinical laboratory environment.	<ul style="list-style-type: none"> <li>• Problem-Based Learning</li> <li>• Group Discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Assignments</li> <li>• Scientific Activities</li> </ul>
<b>2.0</b>	<b>Values</b>		
3.1	Demonstrate accountability in enlightening community in different areas of clinical laboratory sciences.	<ul style="list-style-type: none"> <li>• Service Learning</li> </ul>	<ul style="list-style-type: none"> <li>• Activity</li> </ul>

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Practical report	5 <sup>th</sup> Week	20%
2	Presentation	8 <sup>th</sup> Week	20%
3	Practical Report (Final)	9 <sup>th</sup> Week	30%
4	Hospital Visit	Throughout	10%
5	Final Exam	12 <sup>th</sup> /13 <sup>th</sup> Week	20%
<b>Total</b>			<b>100%</b>

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Course instructors are available for individual consultation in their free time. They are usually full-time permanent members present on-campus from 8:00 am to 2:30 pm on all working days. Appointments can be made in person with the instructor through email etc. Days and time availability of each instructor are posted on their doors. Course instructors provide a range of academic and course management advice including course planning and its progression.
- Each student at the department of Clinical Laboratory Sciences has an academic adviser who is available for individual consultation and guidance. Appointments can be made in person with the instructor through email etc. Days and time availability of each adviser are posted on their doors. The academic adviser can provide support with time management, exam preparation, clarification of subject requirements, feedback on performance and dealing with personal issues as well.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	<ul style="list-style-type: none"> <li>Turgeon Mary Louise, LINNÉ &amp; RINGSRUD'S CLINICAL LABORATORY SCIENCE: CONCEPTS, PROCEDURES, AND CLINICAL APPLICATIONS (2018), 8th EDITION, Elsevier Health Sciences, ISBN: 9780323549837</li> </ul>
<b>Essential References Materials</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Electronic Materials</b>	<ul style="list-style-type: none"> <li>Google Scholar, Pubmed</li> </ul>
<b>Other Learning Materials</b>	<ul style="list-style-type: none"> <li>None</li> </ul>

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show, Blackboard and A/V
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	City Hospitals

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student's feedback on effectiveness of teaching and quality of courses.	Students	Direct: Questionnaire Survey at the end of each semester.
Alignment map of course ILOs with that of program ILOs.	Development and accreditation committee	Direct and Indirect: Student's Performance
Availability of learning resources, facilities and equipments related to each course.	Students and faculty	Direct: Questionnaire Survey at the end of each semester.

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Evaluation of teaching	Peer evaluators	Direct: Peer evaluation
Standard of student achievement	Examination Committee	Direct: Students grades
Periodical review of course effectiveness and planning for its improvement.	Teaching staff/ Development and accreditation committee	Direct: Review by Department Committee

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	Department Council
<b>Reference No.</b>	Meeting Number 11
<b>Date</b>	19/05/2022







## Course Specifications

<b>Course Title:</b>	<b>Coagulation and Hemostasis</b>
<b>Course Code:</b>	<b>373411-2</b>
<b>Program:</b>	<b>Bachelor in Clinical Laboratory Sciences; Level-6 (Program Code: 373000)</b>
<b>Department:</b>	<b>Clinical Laboratory Sciences Department</b>
<b>College:</b>	<b>College of Applied Medical Sciences</b>
<b>Institution:</b>	<b>Taif University</b>

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## A. Course Identification

<b>1. Credit hours:</b> 2 Hours (1 T + 1 P)
<b>2. Course type</b> a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input type="checkbox"/> Others <input checked="" type="checkbox"/> b. Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 11 <sup>th</sup> Level/ Fourth Year
<b>4. Pre-requisites for this course</b> (if any): Hematology (2)/ 373323-3
<b>5. Co-requisites for this course</b> (if any): None

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2 hours /week= 20 hours/semester	40%
2	Blended	None	0%
3	E-learning	None	0%
4	Distance learning	None	0%
5	Other (Laboratory)	3 hours /week= 30 hours/semester	60%

## 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	15
2	Laboratory/Studio	30
3	Tutorial	N/A
4	Others (specify)	NA
	<b>Total</b>	<b>50 Hours</b>

## B. Course Objectives and Learning Outcomes

<p><b>1. Course Description</b></p> <p>This course provides an overview of theory and practical application of hemostasis. It includes coagulation cascade, intrinsic and extrinsic pathways, thrombosis and fibrinolysis. It also takes into account the platelet physiology, platelet coagulation disorders, other coagulation disease conditions and anticoagulant therapy. The course also presents coagulation laboratory testing principles.</p>
<p><b>2. Course Main Objective</b></p> <p>The main objective of the course is to cover hemostasis theory, procedures, and practical applications, as it relates to the clinical laboratory. It also presents hemostasis laboratory principles and correlates result with disease states.</p>

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge and Understanding</b>	
1.1	Describe the normal and abnormal structure and function of major components of hemostasis.	<b>K1</b>
1.2	Recognize test principles and patient results associated with the platelet function disorders and coagulation disorders.	<b>K2</b>
<b>2</b>	<b>Skills</b>	
2.1	Perform hemostasis and coagulation laboratory testing process in a safe and proficient manner.	<b>S1</b>
2.2	Interpret laboratory data and its correlation with disease processes associated with coagulation disorders.	<b>S2</b>
<b>3</b>	<b>Values</b>	
3.1	Show professionalism at doing tasks in context of the course.	<b>V1</b>

### C. (1): Course Content (Theory)

No	List of Topics	Contact Hours
1	Introduction to Hemostasis and Coagulation ( <b>Presentation</b> )	2
2	Primary Hemostasis ( <b>Presentation</b> )	2
3	Secondary Hemostasis (Extrinsic pathway) ( <b>Presentation</b> )	2
4	Secondary Hemostasis (Intrinsic pathway) ( <b>Presentation</b> )	2
5	Fibrinolytic system ( <b>Presentation</b> )	2
6	Vessel Wall Abnormalities ( <b>Presentation</b> )	2
7	Platelet disorders ( <b>Presentation</b> )	2
8	Coagulation disorders ( <b>Presentation</b> )	2
9	Thrombotic Disorders ( <b>Presentation</b> )	2
10	Anticoagulant and antiplatelet ( <b>Presentation</b> )	2
<b>Total</b>		<b>20</b>

### C. (2): Course Content (Practical)

No	List of Topics	Contact Hours
1	Introduction to practical of Hemostasis (Lab Manual)	3
2	Platelets Count (Lab Manual)	3
3	Bleeding Time & Clotting Time (Lab Manual)	3
4	Prothrombin Time Test (PTT) (Lab Manual)	3
5	Activated thromboplastin Time Test (APTT) (Lab Manual)	3
6	Thrombin Time (TT) (Lab Manual)	3
7	Fibrinogen Level (Lab Manual)	3
8	D-dimer Test (Lab Manual)	3
9	Factor Essay (Lab Manual)	3
10	Correction Studies (Lab Manual)	3
<b>Total</b>		<b>30</b>

### D. Teaching and Assessment

#### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	Describe the normal and abnormal structure and function of major components of hemostasis.	<ul style="list-style-type: none"> <li>Lecture</li> </ul>	<ul style="list-style-type: none"> <li>Written Exam</li> </ul>
1.2	Recognize test principles and patient results associated with the platelet function disorders and coagulation disorders.	<ul style="list-style-type: none"> <li>Lecture</li> <li>Practical Session</li> </ul>	<ul style="list-style-type: none"> <li>Written Exam</li> <li>Practical Exam</li> <li>Lab Report</li> </ul>
<b>2.0</b>	<b>Skills</b>		
2.1	Perform hemostasis and coagulation laboratory testing process in a safe and proficient manner.	<ul style="list-style-type: none"> <li>Practical Session</li> </ul>	<ul style="list-style-type: none"> <li>Practical Exam</li> <li>Lab Report</li> </ul>
2.2	Interpret laboratory data and its correlation with disease processes associated with coagulation disorders.	<ul style="list-style-type: none"> <li>Lecture</li> <li>Practical Session</li> <li>Problem-Based Learning</li> </ul>	<ul style="list-style-type: none"> <li>Written Exam</li> <li>OSPE</li> </ul>
<b>3.0</b>	<b>Skills</b>		
3.1	Show professionalism at doing tasks in context of the course.	<ul style="list-style-type: none"> <li>Group discussion</li> </ul>	<ul style="list-style-type: none"> <li>Activity</li> </ul>

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term Exam	5 <sup>th</sup> Week	15%
2	Activity	Throughout the semester	5%
3	Practical Report	Throughout the semester	10%
4	Final Practical Exam	11 <sup>th</sup> Week	20%
5	Final Exam	12 <sup>th</sup> /13 <sup>th</sup> Week	50%
<b>Total</b>			<b>100%</b>

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Course instructors are available for individual consultation in their free time. They are usually full-time permanent members present on-campus from 8:00 am to 2:30 pm on all working days. Appointments can be made in person with the instructor through email etc. Days and time availability of each instructor are posted on their doors. Course instructors provide a range of academic and course management advice including course planning and its progression.
- Each student at the department of Clinical Laboratory Sciences has an academic adviser who is available for individual consultation and guidance. Appointments can be made in person with the instructor through email etc. Days and time availability of each adviser are posted on their doors. The academic adviser can provide support with time management, exam preparation, clarification of subject requirements, feedback on performance and dealing with personal issues as well.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	<ul style="list-style-type: none"> <li>• Victor Hoffbrand, Hoffbrand's Essentials: Haematology. (2015), 7<sup>th</sup> edition, Wiley-Blackwell Publishers. ISBN: 978-1-118-40864-3</li> <li>• Ramadas Nayak, Essentials in Hematology and Clinical Pathology. (2017), 2<sup>nd</sup> edition, Jaypee Brothers Medical Publishers Pvt. Ltd., ISBN-10: 935152423X, ISBN-13: 978-9351524236</li> </ul>
<b>Essential References Materials</b>	None
<b>Electronic Materials</b>	<b>Websites, Search engines (Saudi Digital Library, PubMed, Google Scholar)</b>
<b>Other Learning Materials</b>	<b>Journals, Scientific Magazines and Articles.</b> <ul style="list-style-type: none"> <li>- Journal of thrombosis and haemostasis</li> <li>- Blood Journal</li> </ul>

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show, Blackboard and A/V
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	- Complete blood count machine - Light Microscopes

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student's feedback on effectiveness of teaching.	<ul style="list-style-type: none"> <li>Students</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester.</li> </ul>
Quality of learning resources (laboratory and library) related to each course.	<ul style="list-style-type: none"> <li>Students</li> <li>Staff members</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester related to learning resources.</li> </ul>
Evaluation of teaching	<ul style="list-style-type: none"> <li>Peer evaluators</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Peer evaluation</li> </ul>
Evaluation of exam quality and assessment.	<ul style="list-style-type: none"> <li>Exam committee</li> <li>Students</li> </ul>	<ul style="list-style-type: none"> <li><b>Direct:</b> Exam paper/ exam blueprint review</li> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester.</li> </ul>
Achievement of course learning outcomes	<ul style="list-style-type: none"> <li>Course Coordinators</li> <li>Development and accreditation committee</li> </ul>	<ul style="list-style-type: none"> <li><b>Direct:</b> Student's Performance assessed through item analysis and rubrics.</li> </ul>

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	Department Council
<b>Reference No.</b>	Meeting Number 11
<b>Date</b>	19/05/2022





## Course Specifications

<b>Course Title:</b>	<b>Student's Project</b>
<b>Course Code:</b>	<b>373422-4</b>
<b>Program:</b>	<b>Bachelor in Clinical Laboratory Sciences; Level-6 (Program Code: 373000)</b>
<b>Department:</b>	<b>Clinical Laboratory Sciences Department</b>
<b>College:</b>	<b>College of Applied Medical Sciences</b>
<b>Institution:</b>	<b>Taif University</b>



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## A. Course Identification

<b>1. Credit hours: 4 Hours</b>
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered: 11<sup>th</sup> Level/ Fourth Year</b>
<b>4. Pre-requisites for this course (if any): Clinical Practice/ 373412-3</b>
<b>5. Co-requisites for this course (if any): None</b>

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	6 hours /week= 60 hours/semester	100%
2	Blended	None	0%
3	E-learning	None	0%
4	Distance learning	None	0%
5	Other (Laboratory)	None	0%

## 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	60
2	Laboratory/Studio	N/A
3	Tutorial	N/A
4	Others (specify)	NA
	<b>Total</b>	<b>60 Hours</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

The main purpose of this course is to provide the students with skills required to plan, conduct, analyze, and present the findings of the research conducted. They will learn to write a professional research thesis, use library resources and search engines to find suitable journals and articles relevant to their work and extract important information from these. This course will also provide a platform for students to understand the importance of different types of scientific researches and methods of analysis of data. At the end of this course, students should be able to demonstrate the skills required to develop a research proposal, conduct the practical work for the proposed research, assimilate the results, prepare the dissertation of the research conducted and present their findings.

## 2. Course Main Objective

This course deals with applying knowledge and skills that are required to design and conduct the practical work. Through this course, the students will be able to display professional management of time, resources and quality issues of project and construct thesis, present and interpret thesis data.

## 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge and Understanding</b>	
1.1	Recognize techniques and procedures for the collection of samples, storage, handling and analysis.	K2
<b>2</b>	<b>Skills:</b>	
2.1	Perform laboratory work in safe and effective manner.	S1
2.2	Demonstrate skills to communicate the concepts, principles and information effectively by oral and written means.	S4
2.3	Apply knowledge in designing research, solving research problems, interpreting research data and correlating it with the aim of the research.	S5
<b>3</b>	<b>Values:</b>	
3.1	Display professional and responsible attitude while performing tasks related to the course.	V1

## C. Course Content (Theory)

No	List of Topics	Contact Hours
1	Planning your own research project: Choosing a topic of student's specialty, making suitable literature review <b>(Discussion with Supervisor)</b>	5
2	Writing a Research Proposal: <b>(Group Discussion)</b> <ul style="list-style-type: none"><li>- Clear statement of research question</li><li>- Goals and objectives of research</li><li>- Research project design</li><li>- Setting time frame</li><li>- Anticipated results</li><li>- Budget</li></ul>	5

3	Get started to do research work: <b>(Group Discussion)</b> Collection of samples from the hospitals or other source.	5
4	Working in the hospital laboratories <b>(Practical Work)</b> Analysis of collected samples and collection of data	5
5	Getting started to write dissertation <b>(Group Discussion)</b> Preparing the abstract <ul style="list-style-type: none"> <li>- Aims and Objectives</li> <li>- Methods</li> <li>- Results</li> <li>- Keywords</li> </ul>	5
6	Structuring Introduction based on thorough literature review <b>(Group Discussion)</b>	5
7	Materials and Methods <b>(Group Discussion)</b> <ul style="list-style-type: none"> <li>- Number of subjects matched with their sex and age.</li> <li>- Exclusion and inclusion criteria</li> <li>- Types of samples (patient's sample, control samples)</li> <li>- Type of study (cross-sectional etc)</li> <li>- Methods of analysis of samples (technique used) and analysis of data (program used).</li> </ul>	5
8	Discussion and Conclusion <b>(Group Discussion)</b> <ul style="list-style-type: none"> <li>- Critically evaluate your own research outcomes and relate them to existing ones.</li> <li>- Reaching a conclusion that should clearly define the significance of your research and its impact on the community.</li> </ul>	5
9	Recommendations if any, derived from the research project <b>(Group Discussion)</b> Writing Bibliography: <ul style="list-style-type: none"> <li>- Writing references from journals</li> <li>- Writing references from book</li> </ul>	5
10	Presentation of research <b>(Presentation)</b> Designing a scientific poster	5
11	Getting your research published <ul style="list-style-type: none"> <li>- Choosing an authentic journal</li> <li>- Impacted and peer reviewed journals</li> <li>- Plagiarism</li> </ul>	10
<b>Total</b>		<b>60</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	Recognize techniques and procedures for the collection of samples, storage, handling and analysis.	<ul style="list-style-type: none"> <li>Practical Session</li> </ul>	<ul style="list-style-type: none"> <li>Practical Report</li> </ul>
<b>2.0</b>	<b>Skills</b>		
2.1	Perform laboratory work in safe and effective manner.	<ul style="list-style-type: none"> <li>Practical Session</li> </ul>	<ul style="list-style-type: none"> <li>Practical Exam (Evaluation)</li> <li>Lab Report</li> </ul>
2.2	Demonstrate skills to communicate the concepts, principles and information effectively by oral and written means.	<ul style="list-style-type: none"> <li>Group Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Scientific Activities</li> </ul>
2.3	Apply knowledge in designing research, solving research problems, interpreting research data and correlating it with the aim of the research.	<ul style="list-style-type: none"> <li>Research Project Activity</li> </ul>	<ul style="list-style-type: none"> <li>Scientific Activities</li> </ul>
<b>3.0</b>	<b>Values</b>		
3.1	Display professional and responsible attitude while performing tasks related to the course.	<ul style="list-style-type: none"> <li>Group Discussion (Student Learning Activity)</li> </ul>	<ul style="list-style-type: none"> <li>Activity</li> </ul>

### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term Exam	5 <sup>th</sup> week	40%
5	Final Exam	12 <sup>th</sup> /13 <sup>th</sup> week	60%
	<b>Total</b>		<b>100%</b>

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Course instructors are available for individual consultation in their free time. They are usually full-time permanent members present on-campus from 8:00 am to 2:30 pm on all working days. Appointments can be made in person with the instructor through email etc. Days and time availability of each instructor are posted on their doors. Course instructors provide a range of academic and course management advice including course planning and its progression.
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## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	• None
<b>Essential References Materials</b>	• None
<b>Electronic Materials</b>	• Plagiarism checker programs
<b>Other Learning Materials</b>	• Journals related to each specialty

### 2. Facilities Required

<b>Item</b>	<b>Resources</b>
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show, Blackboard and A/V
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student's feedback on effectiveness of teaching.	<ul style="list-style-type: none"> <li>Students</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester.</li> </ul>
Quality of learning resources (laboratory and library) related to each course.	<ul style="list-style-type: none"> <li>Students</li> <li>Staff members</li> </ul>	<ul style="list-style-type: none"> <li><b>Indirect:</b> Questionnaire Survey at the end of each semester related to learning resources.</li> </ul>
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**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

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