



AUK Template Syllabus

Basic Course Information:

Course Prefix/Number: STEG389-01
Course Title: Non-Destructive Testing inspection systems
Core/Elective Course: Elective
Class Meeting Times: 8:00-8:50 pm-TRU
Instructional Modality: Onsite
Class Location: liberal arts B210
Prerequisite: Phys116

Instructor: Dr. Belal Gharaibeh
Office Location: B413
Office Phone: 3178
Email: bgharaibeh@auk.edu.kw
Office Hours: 9:00-10:00, 13:00-14:00 TRU

AUK Mission Statement:

The American University of Kuwait is a liberal arts institution dedicated to teaching, learning, and scholarship. The University offers programs that provide students with the knowledge and skills necessary for lifelong learning and professional success. AUK enriches society by fostering an environment that encourages critical thinking, effective communication, personal growth, service, and leadership.

Department/College Mission Statement:

The College of Engineering and Applied Sciences (CEAS) is committed to cultivating an inspiring and innovative learning environment that contributes to a culture of lifelong learning driven by the core values of liberal arts education. In its pursuit of excellence in teaching, research and community engagement, the College offers high quality programs in Engineering and Computing.

Catalog Course Description:

Introduction to Non-Destructive Testing (NDT) methods, standards and certification programs, handling inspection system Data, error analysis. Definition and types of defects in manufacturing NDT methods of ultrasonic, electrical testing, radiation and visual testing.

Course Learning Outcomes: Upon successful completion of the course, students will be able to:

Course Learning Outcomes (CLOs)	
CLO1:	Understand the fundamentals of defect analysis, artificial defect generation, system calibrations.
CLO2:	Classifications of Non-Destructive Testing and certification process through the American Society of Non-Destructive Testing
CLO3:	Understand the principles behind major NDT methods
CLO4:	Acquire knowledge of using NDT systems
CLO5:	Analyse 2D images collected from NDT techniques using software packages

Course Delivery/Methodology:

For this course we will be meeting in-person 3 days per week and material will be presented through [lectures/videos/readings done ahead of time]. All [course material/lecture slides/readings] will be posted on Moodle, which can be accessed at [lms.auk.edu.kw]. All assignments must also be submitted through Moodle. You will be completing the following evaluations for this course: [short papers submitted on Turnitin, group work, exams, etc.]. To successfully complete this course, you must [complete readings ahead of time, post regularly on the discussion forum, actively participate in class discussions, etc.] by the posted due dates and times

Required Textbook/Required Readings:

Non Destructive Handbook, Edited by R. C. McMaster, The Ronald Press Company, 1959.
Nde-edu.org

Evaluations and Grading:

Evaluation Type	Weight	description	Link to CLO
Quizzes	10%	2 quizzes 5% each	CLO1 & CLO2, CLO3, CLO4
projects	30%	Two projects using three different NDT techniques	CLO5
Homework assignments	40%	Four homework assignments require reading from external resources	CLO1, CLO2, CLO3, CLO4
Final exam	20%	Comprehensive	CLO1 & CLO2, CLO3, CLO4
Total	100%		

AUK Official Grading Scale:

Letter Grade	Percentage	University Points
A	94-100	4.0
A-	90-93	3.7
B+	87-89	3.3
B	84-86	3.0
B-	80-83	2.7
C+	77-79	2.3
C	74-76	2.0
C-	70-73	1.7
D+	67-69	1.3
D	64-66	1.0
D-	60-63	0.7
F	0-59	0.0

Week	Topic	Assignments and Readings
1(5-Feb-9-Feb)	Syllabus review and course structure explanation	
2 (12-Feb-16Feb)	Introduction to NDT and defectology and probability of detection	
3 (19-Feb-23-Feb)	Introduction to NDT and defectology and probability of detection	Homework 1 (defectology)
4 (26-Feb-2 March)	National and liberation holidays, spring break	
5 (5 -9 March)	Liquid penetrant NDT method	Quiz 1: defectology (5%)
6 (12 -16 March)	Liquid penetrant NDT method	
7 (19-23 March)	Eddy current NDT method	Homework 2 (Liquid penetrant)
8 (26-30 March)	Eddy current NDT method	

9 (2-6 April)	radiography NDT method	
10 (9-13 April)	radiography NDT method	Quiz 2:Eddy current (5%)
11 (16-20-April)	radiography NDT method	Homework 3 (radiography)
12 (23-27April)	Eid-Al-Fitr holiday	
13 (30April-4May)	Ultrasound NDT methods	Project deliverable 1 (15%) radiography
14(7-11May)	Ultrasound NDT methods	
15 (14-18 May)	Digital image correlation for materials testing	
16 (21-25May)	Digital image correlation (DIC) for materials testing	Project deliverable 2 (15%) DIC
17 (28 May-1-June)	Review	Homework 4 (DIC)
4-8June	Final Exam	Onsight during final exam week (20%)

AUK Attendance Policy:

The American University of Kuwait recognizes that class attendance is an important element of students' classroom success. Students are expected to attend all classes, laboratories, and/or required fieldwork. Because excessive absences prevent students from receiving full course benefits and disrupt orderly course progress, AUK has established the following policy on class attendance. Any student who misses more than 15% of class sessions of any course during a semester should expect to fail, unless s/he submits documented evidence to the course instructor of inpatient medical care, death of an immediate family member, academic instructional activities, or national athletic activities. If excused, students are required to satisfy all coursework due or assigned during their absence as determined by the course instructor. If a student does not submit documented evidence for her/his absence exceeding the limit, it is the student's responsibility to withdraw from the course by the specified deadline, as indicated on the academic calendar. Students who withdraw from a course receive a grade of "W". Students who do not withdraw from a course nor submit supporting documents for excessive absences will receive a grade of "FN" (failure for non-attendance).

Code of Academic Honesty and Integrity:

Upon admission to the American University of Kuwait, students agree to act responsibly in all areas of academic, personal and social conduct and to take full responsibility for their individual and collective action. Such regulations are found in the American University of Kuwait Catalogue, Student Handbook, and the AUK website at www.auk.edu.kw. Any question of interpretation regarding the code of academic honesty and Integrity shall be reported to the appropriate academic dean. The Code shall be reviewed annually at the discretion of the academic deans. Any student or student organization found to have committed the cited violations or misconduct, either on or off campus, is subject to the disciplinary sanctions outlined in adjudication procedures.

Plagiarism:

The term "plagiarism" includes, but is not limited to, an attempt of an individual to claim the work of another as the product of his or her own thoughts, regardless of whether that work has been published. Plagiarism includes, but is not limited to, quoting improperly or paraphrasing text or other written materials without proper citation on an exam, term paper, homework, or other written material submitted to an instructor as one's own work. Plagiarism also includes handing in a paper to an instructor that was purchased from a term paper service or downloaded from the Internet and presenting another person's academic work as one's own.

Cheating:

The term “cheating” includes but is not limited to, copying homework assignments from another student; working together with another individual on a take-home test or homework when not approved by the instructor, looking at and/or copying text, notes or another person’s paper during an examination when not permitted to do so. Cheating also includes the giving of work information to another student to be copied and/or used as his or her own. This includes but is not limited to giving someone answers to exam questions either when the exam is being given or after having taken an exam; informing another student of specific questions that appear or have appeared on an exam in the same academic semester; giving or selling a term paper, report, project or other restricted written materials to another student.

Academic Support:

The Writing and Tutoring Center (WTC) focuses on empowering students to become independent and successful learners by developing their literacy skills, enhancing their understanding, and helping them improve their academic and study skills. WTC offers tutoring and writing consultations to all AUK students, and collaborates with academic departments to continuously develop more effective learning support and classroom workshops. WTC also works with faculty and other support units on campus to recognize and respect the rights and equality of all who seek assistance. Students can schedule appointments through the TutorTrac online appointment system, or they can drop in for assistance. The center also uses various digital platforms to conduct online operations.

Disability Accommodations:

AUK provides equal and inclusive educational environment in order to enable all students to meet and perform requisite academic standards and to participate in the opportunities and activities of its community. If you believe you can benefit from accommodations for a learning, physical, or mental health disability, [click here to book a session through the Counseling Center/Disability Services Booking Page](#), to ask about disability services at AUK, initiate an accommodation plan, or receive disability services. You can also email counseling@auk.edu.kw if you need assistance in booking a session.

Academic Honesty - All students are considered to be honest and ethical until proven otherwise. Ethical behavior is extremely important for tomorrow’s decision makers and must be fine-tuned in college.

As reflected in the University’s creed, integrity and scholarship are core values that should guide our conduct and decisions as members of the university community. Plagiarism and cheating contradict these values, and so are very serious academic offenses. Penalties can include a failing grade in an assignment or in the course, or suspension or expulsion from the university. Students are expected to familiarize themselves with and follow the University’s Rules of Conduct (see <http://www.auk.edu.kw/AUK/media/pdf/Academic-Policies-28NOV18.pdf>)

In this course when academic misconduct is evident in a student’s or students’ actions or submitted work, the procedure is as follows:

1. The student will be confronted, in person or via email, about the academic misconduct.
2. The student will be asked to provide a signed statement explaining the incident of academic misconduct.
3. The student will receive the letter grade “F” for the assignment for the first incident of academic misconduct.
4. The student will receive the letter grade “F” for the course for any additional incidents of academic misconduct in the course.

a. If there are multiple incidents of academic misconduct in the same submission, then these incidents will be considered to be separate incidents of academic misconduct and the student will receive the letter grade “F” for the course.

If submitted work is submitted by a group, each and every group member is subject to the same sanctions as for an individual.

Cheating on exams is considered to be the unauthorized use of information from any source other than what is in your brain.

Late and Missing Work Policy: late projects submission will result in grades penalties for the designated project so please be tentative on submitting on Moodle on time.

Make-Up Work Policy: make-up exams are permissible only if have an inpatient hospital admission report.

Communication Policy:

Please be sure to use your official AUK email account, write your full name, and indicate which class and section you are taking (Class ###, DAY/TIME section) when you send me an email. If you have a question, please check the syllabus first and if your question is not answered there, then please feel free to send an email and I will be happy to clarify. I respond to questions via email or posted on the discussion forum within 24 hours of receiving them; if I do not respond within 24 hours, please re-send the email. Please note I normally respond during these working hours: 8 am to 5 pm Sunday through Thursday. Emails sent on weekends will be responded to on Sunday.

Technology Issues:

All assignments must be submitted through Moodle. However, you may experience trouble submitting an assignment due to technology or internet issues. If such a situation does arise and you are unable to submit your assignment through Moodle, please send me an email at bgharaibeh@auk.edu.kw and include the **completed** assignment. Please make sure that you email me the assignment **before** the deadline as this documents that you did finish everything by the due date and time, but that you just had a technology issue. This will ensure that your assignment will be accepted, and you will not receive a late submission penalty. Once the technology or internet issue is resolved, please upload the assignment to Moodle. In general, always be sure to frequently save your files and keep backups of your assignments.

Course Schedule:

Syllabus Changes: Instructors may choose to modify the wording below or create their own version.

There may be changes to the schedule and syllabus during the semester. When this happens, I will inform you in class and over email.

Mapping to ABET Student Outcomes:

CLO	SO-1	SO-2	SO-3	SO-4	SO-5	SO-6	SO-7
1	X						
2				X			
3		X					
4		X					
5							X

- SO-1. an ability to apply identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- SO-2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- SO-3. an ability to communicate effectively with a range of audience.
- SO-4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- SO-5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- SO-6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
- SO-7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.