COURSE INFORMATION

Course Code	AAM 521	Course Name	Remote Sensing and Radiation					
Type of Course	**Level of Course**	**Semester**	**Language**	**Theory**	**Application (Practice)**	**Laboratory**	**Local Credits**	**ECTS**
Elective	Graduate	-	English	3	0	0	3	6

Department	: Aerospace Engineering
Prerequisites/Requirements for Admission	: -
Mode of Delivery	: Face to Face
Course Coordinator	: -
Course Lecturer(s)	: -
Course Assistant(s)	:
Course Description/Aim	: Teaching the basic principles, production and analysis methods of remote sensing and how to use E/M radiation for this purpose. After this course, students will be able to research on the remote sensing and how to use E/M radiation.
Course Contents	: E/M Radiation and remote sensing relation, RADAR working principles, LIDAR working principles, passive sensors, digital image processing techniques.
Recommended Optional Program Components	:
Compulsory Attendance	: 70%

Course Learning Outcomes

#	Learning outcome	Teaching Methods/Techniques	Assessment method(s)
At the end of this course; students will be able to:			
1	Relate E/M Radiation and remote sensing	Theoretical Lecture, Solving Exercises	Exams
2	Understand RADAR working principles	Theoretical Lecture, Solving Exercises	Exams
3	Understand LIDAR working principles	Theoretical Lecture, Solving Exercises	Exams
4	Understand passive sensors	Theoretical Lecture, Solving Exercises	Exams
5	Understand digital image processing techniques	Theoretical Lecture, Solving Exercises	Exams

Weekly Detailed Course Content

Week	Content	Recommended Resource(s)	Time (Hours)
1	Introduction	Textbook/ Lecture Notes	3
2	E/M Radiation-1	Textbook/ Lecture Notes	3
3	E/M Radiation-2	Textbook/ Lecture Notes	3
4	RADAR-1	Textbook/ Lecture Notes	3
5	RADAR-2	Textbook/ Lecture Notes	3

6	RADAR-3	Textbook/ Lecture Notes	3
7	LIDAR-1	Textbook/ Lecture Notes	3
8	Midterm Exam / LIDAR-2	Textbook/ Lecture Notes	3
9	Passive Thermal Sensors-1	Textbook/ Lecture Notes	3
10	Passive Thermal Sensors-2	Textbook/ Lecture Notes	3
11	Satellites	Textbook/ Lecture Notes	3
12	Digital Image Processing-1	Textbook/ Lecture Notes	3
13	Digital Image Processing-2	Textbook/ Lecture Notes	3
14	GIS	Textbook/ Lecture Notes	3
15	Final Exam		3
16	Final Exam		3

Sources

Course Notes / Textbooks	Lecture notes and slides Remote Sensing Imagery Edited by Florence Tupin Jordi Inglada Jean-Marie Nicola - Wiley.
Supplemental Readings	Remote Sensing, Siamak Khorram, Frank H. Koch, Cynthia F. van der Wiele, Stacy A. C. Nelson, Springer Introduction to the Physics and Techniques of Remote Sensing, Charles Elachi, Jakob van Zy, Wiley

Evaluation System

Work Placement	**Number**	**Percentage of Grade (%)**
Attendance		
Quizzes	8	30
Homework		
Presentation		
Laboratory/Practice		
Report(s)		
Graduate Thesis/Project		
Seminar		
Projects		
Midterm exam(s)	1	30
Others		
Final exam	1	40
	Total	100
	Percentage of semester work	60
	Percentage of final exam	40
	Total	100

Workload Calculation

Activity	**Number**	**Time (hours)**	**Total Workload (hours)**
Course Hours	14	3	42
On-line Activity Hours			
Individual study	16	8	128
Midterm exam(s)	1	2	2

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Final exam	1	3	3
Homework			
Presentation			
Project			
		Total	175
		ECTS Credit *(Total/30)*	6

Contribution of Learning Outcomes to Program Outcomes

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
LO1	5	5	3	3	4	3	2	5	2
LO2	5	5	3	3	4	3	2	5	2
LO3	5	5	3	3	4	3	2	5	2
LO4	5	5	3	3	4	3	2	5	2
LO5	5	5	3	3	4	3	2	5	2

Contribution Level : 1: “Very low”, 2: “Low”, 3: “Medium”, 4: “High”, 5: “Very High”
LO: Learning Outcome of the Course
PO: Program Outcome