CURRICULUM
Bachelor's degree program in Aerospace Engineering

ECTS Subject code T ASEe No
- T – type of course: B for BEng, M for MEng;
- I - IV semester – fundamental subjects - professional field 5.5. Transport, shipping and aviation;
- ASEe – specialty "Aerospace Engineering" in Bulgarian;
- No – number of the subject;

Lectures (L), Tutorials (Tut.), Labs (Lab.), Auditorium Total (AT), Self-Study (SS), Exam (E), Continuous Assessment (CA), Semester Project (SP), Semester Assignment (course work) (SA).

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER I													
1	**BASEe01**	Advanced Mathematics I	15	45	0	***60***	90	***150***	1				**6**
2	**BASEe02**	Electrical Engineering and Electronics (1)	15	30	15	***60***	90	***150***	1				**6**
3	**BASEe03**	Engineering Chemistry	30	0	30	***60***	90	***150***	1				**6**
4	**BASEe04**	CAD for Aerospace Engineers	0	0	60	***60***	65	***125***		1			**5**
5	**BASEe05**	Engineering Computer Science I (Matlab and LabView)	15	0	45	***60***	90	***150***		1			**6**
6	**SPRe01**	Sport	0	0	0	***0***	25	***25***		1			**1**
Total			**75**	**75**	**150**	**300**	**450**	**750**	**3**	**3**	**0**	**0**	**30**
SEMESTER II													
7	**BASEe06**	Advanced Mathematics II	15	30	0	***45***	105	***150***	1				**6**
8	**BASEe07**	Engineering Mechanics I - Statics and Kinematics	30	30	0	***60***	90	***150***	1				**6**
9	**BASEe08**	Strength of Materials and Machine Elements Design	30	45	0	***75***	75	***150***		1			**6**
10	**BASEe09**	Electrical Engineering and Electronics (2)	30	0	15	***45***	105	***150***	1				**6**
11	**BASEe10**	Engineering Computer Science II (Python)	15	0	45	***60***	65	***125***		1		1	**5**
12	**SPRe02**	Sport	0	0	0	***0***	25	***25***		1			**1**
Total			**120**	**105**	**60**	**285**	**465**	**750**	**3**	**3**	**0**	**1**	**30**
SEMESTER III													
13	**BASEe11**	Thermodynamics and heat transfer	30	15	15	***60***	90	***150***	1				**6**
14	**BASEe12**	Advanced Mathematics III	15	30	15	***60***	90	***150***		1		1	**6**
15	**BASEe13**	Engineering Mechanics II - Dynamics	30	30	0	***60***	90	***150***	1				**6**
16	**BASEe14**	Aerospace Materials Science and Processing (1)	30	30	0	***60***	90	***150***	1				**6**
17	**BASEe15**	Aerospace Structures and Elements (1)	15	30	0	***45***	80	***125***		1		1	**5**
18	**SPRe03**	Sport	0	0	0	***0***	25	***25***		1			**1**
Total			**120**	**135**	**30**	**285**	**465**	**750**	**3**	**3**	**0**	**2**	**30**
SEMESTER IV													
19	**BASEe16**	Fluid Mechanics (+Aerodynamics)	30	30	0	***60***	90	***150***	1				**6**
20	**BASEe17**	Aerospace Materials Science and Processing (2)	30	30	0	***60***	90	***150***	1				**6**
21	**BASEe18**	Aerospace Structures and Elements (2)	15	30	0	***45***	80	***125***	1				**5**
22	**BASEe19**	Communication and navigation systems I (in space)	30	30	0	***60***	90	***150***		1		1	**6**
23	**BASEe20**	Circuits, Signals and Systems	30	30	0	***60***	90	***150***	1				**6**
24	**SPRe04**	Sport	0	0	0	***0***	25	***25***		1			**1**
Total			**135**	**150**	**0**	**285**	**465**	**750**	**4**	**2**	**0**	**1**	**30**

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER V													
25	**BASEe21**	Aeroelasticity and vibrations	15	0	30	***45***	80	***125***	1				**5**
26	**BASEe22**	Communication and navigation systems II (in space)	15	30	0	***45***	80	***125***	1				**5**
27	**BASEe23**	Spacecraft Attitude Dynamics and Control	30	0	30	***60***	90	***150***	1				**6**
28	**BASEe24**	Orbital Mechanics	30	15	0	***45***	80	***125***	1			1	**5**
29	**BASEe25**	Elective I	30	0	0	***30***	70	***100***		1			**4**
30	**BASEe26**	Professional Intership	0	0	60	***60***	65	***125***		1			**5**
Total			**120**	**45**	**120**	**285**	**465**	**750**	**4**	**2**	**0**	**1**	**30**
SEMESTER VI													
31	**BASEe27**	Spacecraft Control Systems	30	0	30	***60***	65	***125***	1				**5**
32	**BASEe28**	Spacecraft Control Systems - Project	0	0	60	***60***	90	***150***			1		**6**
33	**BASEe29**	Spacecraft Communications	15	0	30	***45***	80	***125***	1				**5**
34	**BASEe30**	Space Propulsion Systems	15	15	0	***30***	70	***100***	1				**4**
35	**BASEe31**	Space Environment	30	0	0	***30***	95	***125***	1				**5**
36	**BASEe32**	Elective II	30	0	30	***60***	65	***125***		1			**5**
Total			**120**	**15**	**150**	**285**	**465**	**750**	**4**	**1**	**1**	**0**	**30**
SEMESTER VII													
37	**BASEe33**	Satellite Design 1	30	15	0	***45***	105	***150***	1				**6**
38	**BASEe34**	Hands-on Training - Project	0	15	45	***60***	65	***125***			1		**5**
39	**BASEe35**	CAE analisys	15	0	30	***45***	80	***125***	1				**5**
40	**BASEe36**	Space Launch Systems	15	0	45	***60***	90	***150***	1				**6**
41	**BASEe37**	Engineering and Transport Logistics	30	15	15	***60***	65	***125***	1			1	**5**
42	**BASEe38**	Elective III	30	0	0	***30***	45	***75***		1			**3**
Total			**120**	**45**	**135**	**300**	**450**	**750**	**4**	**1**	**1**	**1**	**30**
№	**Code**	**SUBJECT**	**Semester Load**						**Assesment**				**ECTS credits**
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER VIII													
43	**BASEe39**	Satellite design 2	30	0	30	***60***	90	***150***	1				**6**
44	**BASEe40**	Satellite System Integration and Tests	30	0	30	***60***	90	***150***	1				**6**
45	**BASEe41**	Entrepreneurial Leadership	30	0	0	***30***	70	***100***		1			**4**
46	**BASEe42**	Elective IV	30	0	0	***30***	70	***100***		1			**4**
47	**BASEe43**	Diploma project	0	0	0	***0***	250	***250***	Defense of diploma thesis				**10**
Total			**120**	**0**	**60**	**180**	**570**	**750**	**2**	**2**	**0**	**0**	**30**

LIST OF THE OPTIONAL SUBJECTS

List 1		**ECTS = 4**
1	Space Engineering English	**BASEe25.1**
2	Space Engineering German	**BASEe25.2**
List 2		**ECTS = 5**
1	Remote Sensing	**BASEe32.1**
2	Artificial Intelligence and Space Engineering	**BASEe32.2**
3	Launch Trajectory, Control and Guidance	**BASEe32.3**
4	Guidance and Navigation in Space	**BASEe32.4**
5	Control Systems Engineering	**BASEe32.5**
List 3		**ECTS = 3**
1	Intellectual Property Policy	**BASEe38.1**
2	Professional Ethics	**BASEe38.2**
3	Space Project Management, Law and Regulations	**BASEe38.3**
List 4		**ECTS = 3**
1	Statistics	**BASEe42.1**
2	Failure analysis	**BASEe42.2**

LIST OF THE FACULTATIVE SUBJECTS

№	Code	SUBJECT	Semester Load						Assesment				ECTS credits
			L	Tut.	Lab.	AT	SS	Total	E	CA	SP	SA	
SEMESTER I													
1	**FaBASEe 01**	Introduction to Satellites and their Applications	30	0	15	***45***	55	***100***		1			**4**
SEMESTER V													
1	**FaSPR05**	Sport	0	0	0	***0***	30	***30***		1			**1**
SEMESTER VI													
1	**FaSPR06**	Sport	0	0	0	***0***	30	***30***		1			**1**
SEMESTER VII													
1	**FaSPR07**	Sport	0	0	0	***0***	30	***30***		1			**1**
2	**FaSPR08**	Planetary Rovers	30	0	20	***50***	60	***110***		1			**4**
SEMESTER VIII													
1	**FaSPR08**	Sport	0	0	0	***0***	30	***30***		1			**1**

II. ОСНОВНИ ПАРАМЕТРИ НА УЧЕБНИЯ ПЛАН

1. Срок на обучение – 4 години, 8 семестъра

2. Аудиторна заетост по учебен план

2.1. Общо – 2205 часа

2.2. Лекции – 930 часа

2.3. Семинарни упражнения – 570 часа

2.4. Лабораторни упражнения – 705 часа

3. Извън аудиторна заетост по учебен план – 3795 часа

4. Пълна заетост по учебен план – 6000 часа

5. Общ брой учебни дисциплини – 47

5.1. Задължителни – 43

5.2. Избираеми – 4

5.4. Факултативни – 1

5.5. Чужд език – 2

5.6. Спорт – 8

5.7. Проекти – 2

5.8. Практикуми – 1

6. Контрол

6.1. Изпити – 27

6.2. Текущи оценки – 17

6.3. Курсови проекти – 2

6.4. Курсови работи – 6

7. Практическа подготовка 2 седмици

8. Общ брой кредити по ECTS: 240

Дата: 11.04.2024 г.

Декан на FT :
/ доц. д-р К. Неделчев /

Приет от ФС на ФТ 20.03.2024 г. с Протокол № 6
Утвърден от АС на ТУ–София на 24.04.2024 г. с Протокол № 4