Sanjay Ghodawat University Kolhapur



School of Engineering and Technology

Department of Aerospace Engineering

B. Tech. Aeronautical Engineering

Curriculum Structure (R25)

Semester: I-VIII

Programme Structure for B Tech.: First Year Aeronautical Engineering (R25)

Semester I: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
USTBS101	Linear Algebra	3	-	1	3	-	1	4
USTBS102	Engineering Physics	3	-	-	3	-	-	3
USTES101	Engineering Graphics	3	-	-	3	-	-	3
USTES103	Basic Electrical and Electronics for Aeronautical Engineers	2	-	-	2	-	-	2
USTBS103	Engineering Physics Lab	-	2	-	-	1	-	1
USTES102	Engineering Graphics Lab	-	2	-	-	1	-	1
USTES104	Basic Electrical and Electronics for Aeronautical Engineers	-	2	-	-	1	-	1
USTIK001	Indian Science, Engineering and Technology (Past, Present and Future)	2	-	-	2	-	-	2
USTVS102	C++ Programming	-	4	-	-	2	-	2
UHSVE001	Constitution of India	2	-	-	2	-	-	2
UISCC0XX	Co-curricular courses I	-	4	-	-	2	-	2
UHSVE005	Universal Human Values	-	-	-				Audit Course
	Total	**15**	**14**	**1**	**15**	**7**	**1**	**23**

- During the Induction Program, students would get an initial exposure to human values through Universal Human Values course
- C Programming course of 8 hours shall be conducted as bridge course before starting of C++ Programming in curriculum

Semester I: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work / Tutorial	Practical Oral/ POE	
		T1	T2	FET	Total				
USTBS101	Linear Algebra	10	10	5	25	50	25	-	100
USTBS102	Engineering Physics	10	10	5	25	50	-	-	75
USTES101	Engineering Graphics	10	10	5	25	50	-	-	75
USTES103	Basic Electrical and Electronics for Aeronautical Engineers	-	10	5	15	35	-	-	50
USTBS103	Engineering Physics Lab	-	-	-	-	-	25	-	25
USTES102	Engineering Graphics Lab	-	-	-	-	-	25	-	25
USTES104	Basic Electrical and Electronics for Aeronautical Engineers Lab	-	-	-	-	-	25	-	25
USTIK001	Indian Science, Engineering and Technology (Past, Present and Future)	-	10	5	15	35	-	-	50
USTVS102	C++ Programming	-	-	-	-	-	50	-	50
UHSVE001	Constitution of India	-	10	5	15	35	-	-	50
UISCC0XX	Co-curricular courses I	-	-	-	-	-	50	-	50
UHSVE005	Universal Human Values	-	-	-	-	-	-	-	Audit Course
								Total	**575**

Semester II: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
USTBS202	Calculus and Transforms	3	-	1	3	-	1	4
USTBS204	Engineering Chemistry	3	-	-	3	-	-	3
USTES201	Engineering Mechanics	3	-	-	3	-	-	3
UAEPC201	Elements of Aeronautical Engineering	3	-	-	3	-	-	3
USTBS205	Engineering Chemistry Lab	-	2	-	-	1	-	1
USTES202	Engineering Mechanics Lab	-	2	-	-	1	-	1
UAEPC202	Elements of Aeronautical Engineering Lab	-	2	-	-	1	-	1
UHSAE001	Professional Communication	1	2	-	2	-	-	2
USTVS202	Basic Engineering Practices	-	4	-	-	2	-	2
UISCC0XX	Co-curricular courses II	-	4	-	-	2	-	2
Total		**13**	**16**	**1**	**14**	**7**	**1**	**22**

Semester II: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work/ Tutorial	Practical Oral/POE	
		T1	T2	FET	Total				
USTBS202	Calculus and Transforms	10	10	5	25	50	25	-	100
USTBS204	Engineering Chemistry	10	10	5	25	50	-	-	75
USTES201	Engineering Mechanics	10	10	5	25	50	-	-	75
UAEPC201	Elements of Aeronautical Engineering	10	10	5	25	50	-	-	75
USTBS205	Engineering Chemistry Lab	-	-	-	-	-	25	-	25
USTES202	Engineering Mechanics Lab	-	-	-	-	-	25	-	25
UAEPC202	Elements of Aeronautical Engineering Lab	-	-	-	-	-	25	-	25
UHSAE001	Professional Communication	-	10	5	15	35	-	-	50
USTVS202	Basic Engineering Practices	-	-	-	-	-	50	-	50
UISCC0XX	Co-curricular courses II	-	-	-	-	-	50	-	50
								Total	**550**

Exit Option:

- Students will have the flexibility to enter the programme in odd semesters and exit the programme after the successful completion of even semesters as per their future career needs. Students exiting the First-Year program after securing minimum 40 credits will be awarded UG Certificate in the relevant Discipline /Subject provided they secure 8 credits in work-based vocational courses or internship / Apprenticeship offered during summer vacation in addition to 8 credits from skill-based courses earned during the first and second semester.

Programme Structure for B Tech.: Second Year Aeronautical Engineering (R25)

Semester III: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UAEPC301	Aero Thermodynamics	3	-	-	3	-	-	3
UAEPC302	Fluid Mechanics	3	-	-	3	-	-	3
UAEPC303	Mechanics of Materials	2	-	-	2	-	-	2
UAEPC304	Digital Control Systems	2	-	-	2	-	-	2
UXXMM0XX	Multidisciplinary Minor I	2	-	-	2	-	-	2
UXXOE01X	Open Elective I	2	-	-	2	-	-	2
UCMEM001	Engineering Economics	2	-	-	2	-	-	2
UAEPC305	Aero Thermodynamics Lab	-	2	-	-	1	-	1
UAEPC306	Fluid Mechanics Lab	-	2	-	-	1	-	1
UAEPC307	Digital Control Systems Lab	-	2	-	-	1	-	1
USTVE004	Environmental Science and Sustainability	2	-	-	2	-	-	2
UHSAE008	Employability Skills	1	2	-	-	2	-	2
Total		**19**	**8**	**-**	**18**	**5**	**-**	**23**

Semester III: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
UAEPC301	Aero Thermodynamics	10	10	5	25	50	-	-	75
UAEPC302	Fluid Mechanics	10	10	5	25	50	-	-	75
UAEPC303	Mechanics of Materials	-	10	5	15	35	-	-	50
UAEPC304	Digital Control Systems	-	10	5	15	35	-	-	50
UXXMM0XX	Multidisciplinary Minor I	-	10	5	15	35	-	-	50
UXXOE01X	Open Elective I	-	10	5	15	35	-	-	50
UCMEM001	Engineering Economics	-	10	5	15	35	-	-	50
UAEPC305	Aero Thermodynamics Lab	-	-	-	-	-	25	-	25
UAEPC306	Fluid Mechanics Lab	-	-	-	-	-	25	-	25
UAEPC307	Digital Control Systems Lab	-	-	-	-	-	25	-	25
USTVE004	Environmental Science and Sustainability	-	10	5	15	35	-	-	50
UHSAE008	Employability Skills	-	-	-	-	-	25	25	50
								Total	**575**

Programme Structure for B Tech.: Second Year Aeronautical Engineering

Semester IV: Teaching Scheme

Course code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UAEPC401	Low Speed Aerodynamics	3	-	-	3	-	-	3
UAEPC402	Air Breathing Propulsion	3	-	-	3	-	-	3
UAEPC403	Theory of Machines	2	-	-	2	-	-	2
UXXMM0XX	Multidisciplinary Minor II	2	-	-	2	-	-	2
UXXOE02X	Open Elective II	2	-	-	2	-	-	2
UCMEM002	Project Management	2	-	-	2	-	-	2
UAEVE401	Artificial Intelligence in Aviation	2	-	-	2	-	-	2
UAEVS401	Software Proficiency I	-	4	-	-	2	-	2
UAEPC404	Low Speed Aerodynamics Lab	-	2	-	-	1	-	1
UAEPC405	Air Breathing Propulsion Lab	-	2	-	-	1	-	1
UAEPC406	Theory of Machines Lab	-	2	-	-	1	-	1
UAEFP401	Field Project	-	4	-	-	2	-	2
Total		**16**	**14**		**16**	**7**		**23**

Semester IV: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work	Practical Oral /POE	
		T1	T2	FET	Total				
UAEPC401	Low Speed Aerodynamics	10	10	5	25	50	-	-	75
UAEPC402	Air Breathing Propulsion	10	10	5	25	50	-	-	75
UAEPC403	Theory of Machines	-	10	5	15	35	-	-	50
UXXMM0XX	Multidisciplinary Minor II	-	10	5	15	35	-	-	50
UXXOE02X	Open Elective II	-	10	5	15	35	-	-	50
UCMEM002	Project Management	-	10	5	15	35	-	-	50
UAEVE401	Artificial Intelligence in Aviation	-	10	5	15	35	-	-	50
UAEVS401	Software Proficiency I	-	-	-	-	-	25	25	50
UAEPC404	Low Speed Aerodynamics Lab	-	-	-	-	-	25	-	25
UAEPC405	Air Breathing Propulsion Lab	-	-	-	-	-	25	-	25
UAEPC406	Theory of Machines Lab	-	-	-	-	-	25	-	25
UAEFP401	Field Project	-	-	-	-	-	25	25	50
								Total	**575**

Exit Option:

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the Second Year Programme after securing minimum 80credits will be awarded UG Diploma in the relevant Discipline /Subject provided they secure additional 8 credits in skill-based vocational courses (skill-based courses, internship, mini projects etc) offered during summer vacation after the second year.

Programme Structure for B Tech.: Third Year Aeronautical Engineering

Semester V: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
UAEPC501	High Speed Aerodynamics	3	-	-	3	-	-	3
UAEPC502	Aircraft Structures I	3	-	-	3	-	-	3
UAEPC503	Flight Dynamics	3	-	-	3	-	-	3
UAEPE5XX	Program Elective I	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor III	2	-	-	2	-	-	2
UXXOE03X	Open Elective III	2	-	-	2	-	-	2
UAEVS501	Software Proficiency II	-	4	-	-	2	-	2
UAEPC504	Flight Simulation Lab	-	2	-	-	1	-	1
UAEPC505	Aircraft Design Lab	-	4	-	-	2	-	2
Total		**16**	**10**		**16**	**5**		**21**

Semester V: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE			
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UAEPC501	High Speed Aerodynamics	10	10	5	25	50	-	-	75
UAEPC502	Aircraft Structures I	10	10	5	25	50	-	-	75
UAEPC503	Flight Dynamics	10	10	5	25	50	-	-	75
UAEPE5XX	Program Elective I	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor III	-	10	5	15	35			50
UXXOE03X	Open Elective III	-	10	5	15	35	-	-	50
UAEVS501	Software Proficiency II	-	-	-	-	-	25	25	50
UAEPC504	Flight Simulation Lab	-	-	-	-		25	-	25
UAEPC505	Aircraft Design Lab	-	-	-	-	-	25	25	50
								Total	**525**

Semester VI: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UAEPC601	Finite Element Method	3	-	-	3	-	-	3
UAEPC602	Aircraft Structures II	3	-	-	3	-	-	3
UAEPC603	Advanced Aircraft Materials	3	-	-	3	-	-	3
UAEPE6XX	Program Elective II	3	-	-	3	-	-	3
UAEPE6XX	Program Elective III	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor IV	2	-	-	2	-	-	2
UAEPC604	Aircraft Structures Lab	-	4	-	-	2	-	2
UAEPC605	Finite Element Method Lab	-	4	-	-	2	-	2
UAEPC606	Advanced Aircraft Materials Lab	-	2	-	-	1	-	1
Total		**17**	**10**	**-**	**17**	**5**	**-**	**22**

Semester VI: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				SEE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UAEPC601	Finite Element Method	10	10	5	25	50	-	-	75
UAEPC602	Aircraft Structures II	10	10	5	25	50	-	-	75
UAEPC603	Advanced Aircraft Materials	10	10	5	25	50	-	-	75
UAEPE6XX	Program Elective II	10	10	5	25	50	-	-	75
UAEPE6XX	Program Elective III	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor IV	-	10	5	15	35			50
UAEPC604	Aircraft Structures Lab	-	-	-	-	-	25	25	50
UAEPC605	Finite Element Method Lab	-	-	-	-		25	25	50
UAEPC606	Advanced Aircraft Materials Lab	-	-	-	-	-	25	-	25
								Total	**550**

Exit Option:

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the 3-year UG program will be awarded B.Voc. in the relevant Discipline /Subject upon securing minimum 120 credits with additional 8 credits in skill-based vocational courses (skill-based courses, internship, mini projects etc.) offered during summer vacation after the sixth semester.

Programme structure for B. Tech: Final Year Aeronautical Engineering (R25)

Semester VII: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
UAEPC701	Aircraft Systems	3	-	-	3	-	-	3
UAEPC702	Computational Fluid Dynamics	3	-	-	3	-	-	3
UAEPE7XX	Program Elective IV	3	-	-	3	-	-	3
USTRM701	Research Methodology	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor V	2	-	-	2	-	-	2
UAEPC703	Aircraft Systems Lab	-	4	-	-	2	-	2
UAEPC704	Computational Fluid Dynamics Lab	-	4	-	-	2	-	2
UAEPE7XX	Program Elective IV Lab	-	4	-	-	2	-	2
UAEPR701 **OR** UAEEP701 **OR** U1AERE701	Project Phase I (Industry Internship with Capstone Project Track) **OR** Entrepreneurship Project Phase I (Entrepreneurship Venture Track) **OR** Research Project Phase I (Higher Opportunity Track)	-	4	-	-	2	-	2
Total		**14**	**16**		**14**	**8**		**22**

Semester VII :Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
UAEPC701	Aircraft Systems	10	10	5	25	50	-	-	75
UAEPC702	Computational Fluid Dynamics	10	10	5	25	50	-	-	75
UAEPE7XX	Program Elective IV	10	10	5	25	50	-	-	75
USTRM701	Research Methodology	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor V	-	10	5	15	35	-	-	50
UAEPC703	Aircraft Systems Lab	-	-	-	-	-	25	25	50
UAEPC704	Computational Fluid Dynamics Lab	-	-	-	-	-	25	25	50
UAEPE7XX	Program Elective IV Lab	-	-	-	-	-	25	25	50
UAEPR701 **OR** UAEEP701 **OR** UAERE701	Project Phase I (Industry Internship with Capstone Project) **OR** Entrepreneurship Project Phase I (Entrepreneurship Venture Track) **OR** Research Project Phase I (Higher Opportunity Track)	-	-	-	-	-	50	-	50
Total									**550**

Note: The Evaluation of Project Phase I is divided into two parts (Internal Assessment)

a) Preparation and presentation of the proposal of the Project (Motivation/ Relevance, Problem Statement, Literature Survey, Objectives, Methodology and design of the project) for 25marks.

b) Student shall present a seminar on the topic relevant to the Project work for 25 marks.

Programme structure for B. Tech: Final Year Aeronautical Engineering (R23)

Track I: Industry Internship with Capstone Project Track

Semester VIII: Teaching Scheme

Course code	Course name	Teaching scheme			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UAEPE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
UAEPR801	Project Phase II	-	8	-	-	4	-	4
UAEOT801	Internship/On job Training	-	24	-	-	12	-	12
Total		**5**	**32**	**-**	**5**	**16**	**-**	**21**

Semester VIII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UAEPE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
UAEPR801	Project Phase II	-	-	-	-	-	50	50	100
UAEOT801	Internship/On job Training	-	-	-	-	-	200	100	300
Total									**525**

Note:

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

Programme structure for B. Tech: Final Year Aeronautical Engineering (R25)

Track II: Entrepreneurship Venture Track

Semester VIII: Teaching Scheme

Course code	Course name	Teaching scheme			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UAEPE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
UAEEP801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
UAEEP802	Entrepreneurship project Phase II	-	24	-	-	12	-	12
Total		**5**	**24**	**-**	**9**	**12**	**-**	**21**

Semester VIII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UAEPE8XX	Program Elective IV	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
UAEEP801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
UAEEP802	Entrepreneurship project Phase II	-	-	-	-	-	200	100	300
								Total	**525**

Note:

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

Programme structure for B. Tech: Final Year Aeronautical Engineering (R25)
Track III: Higher Opportunity Track
Semester VIII: Teaching Scheme

Course code	Course name	Teaching scheme			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UAEPE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
UAERE801	Online Course in Advanced Technology (Domain area)	-	-	-	4	-	-	4
UAERE802	Research Project Phase II	-	24	-	-	12	-	12
Total		**5**	**24**	**-**	**9**	**12**	**-**	**21**

Semester VIII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UAEPE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
UAERE801	Online Course in Advanced Technology (Domain area)	-	-	-	25	75	-	-	100
UAERE802	Research Project Phase II	-	-	-	-	-	200	100	300
Total									**525**

Note:

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

List of Co-curricular courses I & II	
Course Code	**Course Name**
UISCC011	National Service Scheme
UISCC012	Regular & Special NSS Camp Activity
UISCC021	Indian Music
UISCC022	Fine Arts
UISCC023	Indian Dance
UISCC031	Physical Fitness
UISCC032	Yoga & Meditation

Program Electives						
Program Elective	**Vertical I (Design)**		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drone Technology)**	
	Code	**Course**	**Code**	**Course**	**Code**	**Course Name**
I	UAEPE511	Unmanned Aerial Vehicle	UAEPE521	Aircraft General Engineering and Maintenance	UAEPE531	Avionics Engineering
	UAEPE512	Fatigue and Fracture	UAEPE522	Aircraft Electrical Systems Maintenance		
II	UAEPE611	Hypersonic Aerodynamics	UAEPE621	Aero Engine Maintenance	UAEPE631	Control Engineering
	UAEPE612	Vibrations and Aero Elasticity	UAEPE622	Airframe Maintenance and Repair		
III	UAEPE613	Rocket Propulsion	UAEPE623	Air Traffic Control	UAEPE632	Guidance and Control
	UAEPE614	Flight Controls Systems	UAEPE624	Aircraft Technical Publications		
IV	UAEPE711	Wind Tunnel Techniques	UAEPE721	Aircraft Condition Monitoring	UAEPE731	UAV Design
	UAEPE712	Hypersonic Aerodynamics	UAEPE722	Helicopter Maintenance		
IV Lab	UAEPE713	Wind Tunnel Techniques Lab	UAEPE723	Aircraft Condition Monitoring Lab	UAEPE732	UAV Design Lab
	UAEPE714	Hypersonic Aerodynamics Lab	UAEPE724	Helicopter Maintenance Lab		
V	UAEPE811	Lighter Than Air Systems	UAEPE821	Civil Aviation Regulations	UAEPE831	Aerodynamics for Drones
	UAEPE812	Experimental Stress Analysis	UAEPE822	Airport and Airline Management		

Minor Tracks for School of Engineering & Technology (UG)

No.	Minor	School/Department	Credits
1.	Avionics Engineering	Aerospace Engineering	12
2	Space Technology		12
3	Drone Technology		12
4	Data Science	AIML	12
5	Intelligent Systems & Applications		12
6	Environmental Engineering	Civil Engineering	12
7	Networking	Computer Science and Engineering	12
8	Data Science		12
9	Cyber Security		12
10	Software Development		12
11	Embedded systems & IOT	Electronics and Communication Engineering	12
12	Wireless Communication		12

Note:

- Students are advised to select the minor track from above list.
- Students are not allowed to select the minor track from the same department offering the major courses.
- For the details of the Structure, Syllabus, Teaching and Evaluation Scheme Students should refer the syllabus section of the respective department offering the minor tracks.

Open Elective I				
No.	**Course Code**	**Course**	**Faculty/School /Department**	**Credits**
1	UAEOE011	Basic Aeronautical Engineering	Department of Aerospace Engg.	2
2	UAIOE011	Software Models	Department of AIML	2
3	UCEOE011	Advanced Building Materials	Department of Civil Engg.	2
4	UCSOE011	Introduction to Latex	Department of Comp. Sc. & Engg.	2
5	UECOE011	Semiconductor Devices	Department of Elect. & Comm. Engg.	2
6	UCAOE012	Python Programming	School of Computer Applications	2
7	UPHOE011	World of Nano Science	School of Physical & Chemical Sciences	2
8	UFSOE012	Basics of Food Processing	Department of Food Science & Technology	2
9	UDCOE011	Selling Skills	Department of Commerce	2
10	UBAOE011	Basics of Marketing	Department of Management	2
11	UAROE011	Introduction To GIS	Department of Social Sciences	2
12	UAROE012	Applied Communicative English	Department of Social Sciences	2
13	UBTOE011	Introduction to Biotechnology	Department of Bio Technology	2
Open Elective II				
1	UAEOE021	Aircraft Systems and Instruments	Department of Aerospace Engg.	2
2	UAIOE021	Introduction to Python	Department of AIML	2
3	UCEOE021	Green Building	Department of Civil Engg.	2
4	UCSOE021	Advance Microsoft Office	Department of Comp. Sc. & Engg.	2
5	UECOE021	Fundamentals of Communication Engineering	Department of Elect. & Comm. Engg.	2
6	UCAOE022	Data Analytics Tools	School of Computer Applications	2
7	UPHOE021	Wonders in Nanotechnology	School of Physical & Chemical Sciences	2
8	UFSOE022	Bakery and Confectionary Skills	Department of Food Science & Technology	2
9	UDCOE021	Financial Literacy	Department of Commerce	2
10	UBAOE021	Export- Import Documentation and Procedures	Department of Management	2
11	UAROE021	Tourism & Travel Management	Department of Social Sciences	2
12	UAROE022	Language Analytics	Department of Social Sciences	2
13	UBTOE021	Basics in Bioinformatics	Department of Bio Technology	2
Open Elective III				
1	UAEOE031	Unmanned Aerial Vehicle	Department of Aerospace Engg.	2
2	UAIOE031	Introduction to Data Analytics	Department of AIML	2
3	UCEOE031	Disaster Management & Mitigation	Department of Civil Engg.	2
4	UCSOE031	Fundamental of C Programming	Department of Comp. Sc. & Engg.	2
5	UECOE031	Automotive Electronics	Department of Elect. & Comm. Engg.	2
6	UCAOE032	Data Visualization Techniques using Tableau	School of Computer Applications	2
7	UCHOE031	Green Chemistry & Sustainability	School of Physical & Chemical Sciences	2
8	UFSOE032	Basics of Food Adulteration	Department of Food Science & Technology	2
9	UDCOE031	Personal Financial Planning	Department of Commerce	2
10	UBAOE031	Event Management	Department of Management	2
11	UAROE031	English for Competitive Examinations	Department of Social Sciences	2
12	UAIOE032	Agentic AI	Department of AIML	2
13	UBTOE031	Microbial World and Its Applications	Department of Bio Technology	2

Note: For details of Syllabus, Teaching and Evaluation scheme, please refer to the structure and syllabus of respective departments.