Sanjay Ghodawat University Kolhapur

School of Engineering and Technology
Department of Aerospace Engineering

B. Tech. Aeronautical Engineering

Curriculum Structure (R23)

Semester: I-VIII

Batch: 2023-27 & 2024-28

Programme Structure for B Tech.: First Aeronautical Year Engineering (R23)

Semester I: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
U01BS101	Applied Mathematics I	3	-	-	3	-	-	3
U01BS001 U01BS002	Applied Chemistry OR Applied Physics	3	-	-	3	-	-	3
U01ES001 U01ES002	Engineering Mechanics OR Engineering Graphics	2	-	-	2	-	-	2
U01ES003 U01ES004	Basic Civil and Mechanical Engineering OR Basic Electrical and Electronics Engineering	3	-	-	3	-	-	3
U01BS003 U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	2	-	-	1	-	1
U01ES005 U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	4	-	-	2	-	2
U01ES007 U01ES008	Basic Civil and Mechanical Engineering Lab OR Basic Electrical and Electronics Engineering Lab	-	2	-	-	1	-	1
U03AE001 U01IK001	Professional Communication OR Indian Science, Engineering and Technology (Past, Present and Future)	2*	-	-	2	-	-	2
U01VS001 U01VS002	Workshop Practice-I:C Programming OR Workshop Practice-II: Basic Engineering Practices	-	4	-	-	2	-	2
U04CC0XX	Co-curricular Courses I	-	4	-	-	2	-	2
U03VE001	Constitution of India	2	-	-	2	-	-	2
U03VE002	Universal Human Values-I[#]	-	-	-				**Audit Course**
	Total	**15**	**16**	**-**	**15**	**8**	**-**	**23**

- ***Out of 2 hours, 1 hour theory shall be taught to entire class followed by 1 hrs. Practical in batches,Th: Theory, Pr: Practical, Tu: Tutorial**
- **#During the Induction Program, students would get an initial exposure to human values through Universal Human Values-I.**

Semester I: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
U01BS101	Applied Mathematics I	10	10	5	25	50	-	-	75
U01BS001 U01BS002	Applied Chemistry OR Applied Physics	10	10	5	25	50	-	-	75
U01ES001 U01ES002	Engineering Mechanics OR Engineering Graphics	-	10	5	15	35	-	-	50
U01ES003 U01ES004	Basic Civil and Mechanical Engineering OR Basic Electrical and Electronics Engineering	10	10	5	25	50	-	-	75
U01BS003 U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	-	-	-	-	25	-	25
U01ES005 U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	-	-	-	-	50	-	50
U01ES007 U01ES008	Basic Civil and Mechanical Engineering Lab OR Basic Electrical and Electronics Engineering Lab	-	-	-	-	-	25	-	25
U03AE001 U01IK001	Professional Communication OR Indian Science, Engineering and Technology (Past, Present and Future)	-	10	5	15	35	-	-	50
U01VS001 U01VS002	Workshop Practice-I:C Programming OR Workshop Practice-II: Basic Engineering Practices	-	-	-	-	-	50	-	50
U04CC0XX	Co-curricular courses I	-	-	-	-	-	50	-	50
U03VE001	Constitution of India	-	10	5	15	35	-	-	50
U03VE002	Universal Human Values-I	-	-	-	-	-	-	-	**Audit Course**

- **Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course**

Programme Structure for B Tech.: First Year Aeronautical Engineering
Semester II: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total Credits
U01BS201	Applied Mathematics II	3	-	-	3	-	-	3
U01BS001 U01BS002	Applied Chemistry OR Applied Physics	3	-	-	3	-	-	3
U01ES001 U01ES002	Engineering Mechanics OR Engineering Graphics	2	-	-	2	-	-	2
U01ES003 U01ES004	Basic Civil and Mechanical Engineering OR Basic Electrical and Electronics Engineering	3	-	-	3	-	-	3
U01BS003 U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	2	-	-	1	-	1
U01ES005 U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	4	-	-	2	-	2
U01ES007 U01ES008	Basic Civil and Mechanical Engineering Lab OR Basic Electrical and Electronics Engineering Lab	-	2	-	-	1	-	1
U03AE001 U01IK001	Professional Communication OR Indian Science, Engineering and Technology (Past, Present and Future)	2*	-	-	2	-	-	2
U01VS001 U01VS002	Workshop Practice-I:C Programming OR Workshop Practice-II: Basic Engineering Practices	-	4	-	-	2	-	2
U04CC0XX	Co-curricular courses II	-	4	-	-	2	-	2
	Total	**13**	**16**		**13**	**8**		**21**

- ***Out of 2 hours, 1 hour Theory shall be taught to entire class followed by 1 hrs. Practical in batches, Th: Theory, Pr: Practical, Tu: Tutorial**

Semester II: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
U01BS201	Applied Mathematics II	10	10	5	25	50	-	-	75
U01BS001 U01BS002	Applied Chemistry OR Applied Physics	10	10	5	25	50	-	-	75
U01ES001 U01ES002	Engineering Mechanics OR Engineering Graphics	-	10	5	15	35	-	-	50
U01ES003 U01ES004	Basic Civil and Mechanical Engineering OR Basic Electrical and Electronics Engineering	10	10	5	25	50	-	-	75
U01BS003 U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	-	-	-	-	25	-	25
U01ES005 U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	-	-	-	-	50	-	50
U01ES007 U01ES008	Basic Civil and Mechanical Engineering Lab OR Basic Electrical and Electronics Engineering Lab	-	-	-	-	-	25	-	25
U03AE001 U01IK001	Professional Communication OR Indian Science, Engineering and Technology (Past, Present and Future)	-	10	5	15	35	-	-	50
U01VS001 U01VS002	Workshop Practice-I:C Programming OR Workshop Practice-II: Basic Engineering Practices	-	-	-	-	-	50	-	50
U04CC0XX	Co-curricular courses II	-	-	-	-	-	50	-	50
								Total	525

- **Minimum passing is 40% for all courses and evaluation head mentioned above. FET – FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course**
- **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 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

(R23) Semester III: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
U11PC301	Elements of Aeronautical Engineering	3	-	-	3	-	-	3
U11PC302	Aero Thermodynamics	3	-	-	3	-	-	3
U11PC303	Fluid Mechanics	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor I	2	-	-	2	-	-	2
UXXOE01X	Open Elective I	2	-	-	2	-	-	2
U02EM001	Engineering Economics	2	-	-	2	-	-	2
U11PC304	Elements of Aeronautical Engineering Lab	-	2	-	-	1	-	1
U11PC305	Fluid Mechanics and Thermal Engineering Lab	-	4	-	-	2	-	2
U01VE003	Environmental Science	2	-	-	2	-	-	2
U11FP001	Field Project		4	-	-	2	-	2
Total		**17**	**10**	**-**	**17**	**5**	**-**	**22**

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				
U11PC301	Elements of Aeronautical Engineering	10	10	5	25	50	-	-	75
U11PC302	Aero Thermodynamics	10	10	5	25	50	-	-	75
U11PC303	Fluid Mechanics	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor I	-	10	5	15	35	-	-	50
UXXOE01X	Open Elective I	-	10	5	15	35	-	-	50
U02EM001	Engineering Economics	-	10	5	15	35	-	-	50
U11PC304	Elements of Aeronautical Engineering Lab	-	-	-	-	-	25	-	25
U11PC305	Fluid Mechanics and Thermal Engineering Lab	-	-	-	-	-	25	25	50
U01VE003	Environmental Science		10	5	15	35	-	-	50
U11FP001	Field Project	-	-	-	-	-	25	25	50
								Total	550

- 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

Programme Structure for B Tech.: Second Year Aeronautical Engineering

(R23) Semester IV: Teaching Scheme

Course code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
U11PC401	Low Speed Aerodynamics	3	-	-	3	-	-	3
U11PC402	Air Breathing Propulsion	3	-	-	3	-	-	3
U11PC403	Mechanics of Materials	2	-	-	2	-	-	2
UXXMM0XX	Multidisciplinary Minor II	2	-	-	2	-	-	2
UXXOE02X	Open Elective II	2	-	-	2	-	-	2
U02EM002	Engineering Management	2	-	-	2	-	-	2
U11VS401	Software Proficiency I (VEC)	-	4	-	-	2	-	2
U11PC404	Low Speed Aerodynamics Lab	-	2	-	-	1	-	1
U11PC405	Air Breathing Propulsion Lab	-	2	-	-	1	-	1
U03AE003 **U03AE004** **U03AE005**	Modern Indian Language – Hindi OR Modern Indian Language – Sanskrit OR Modern Indian Language – Marathi	2	-	-	2	-	-	2
U03VE004	Universal Human Values -II	2	-	-	2	-	-	2
	Total	**18**	**8**		**18**	**4**		**22**

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				
U11PC401	Low Speed Aerodynamics	10	10	5	25	50	-	-	75
U11PC402	Air Breathing Propulsion	10	10	5	25	50	-	-	75
U11PC403	Mechanics of Materials	-	10	5	15	35	-	-	50
UXXMM0XX	Multidisciplinary Minor II	-	10	5	15	35	-	-	50
UXXOE02X	Open Elective II	-	10	5	15	35	-	-	50
U02EM002	Engineering Management	-	10	5	15	35	-	-	50
U11VS401	Software Proficiency I (VEC)	-	-	-	-	-	25	25	50
U11PC404	Low Speed Aerodynamics Lab	-	-	-	-	-	25	-	25
U11PC405	Air Breathing Propulsion Lab	-	-	-	-	-	25	-	25
U03AE003 **U03AE004** **U03AE005**	Modern Indian Language – Hindi OR Modern Indian Language – Sanskrit OR Modern Indian Language – Marathi	-	10	5	15	35	-	-	50
U03VE004	Universal Human Values -II	-	10	5	15	35	-	-	50
								Total	550

- 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 - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

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 Aeronautical Engineering

(R23) Semester V: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
U11PC501	High Speed Aerodynamics	3	-	-	3	-	-	3
U11PC502	Aircraft Structures I	3	-	-	3	-	-	3
U11PC503	Flight Dynamics	3	-	-	3	-	-	3
U11PE5XX	Program Elective I	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor III	2	-	-	2	-	-	2
UXXOE03X	Open Elective III	2	-	-	2	-	-	2
U11VS501	Software Proficiency II	-	4	-	-	2	-	2
U11PC504	Flight Simulation	-	2	-	-	1	-	1
U11PC505	Aircraft Design Lab	-	4	-	-	2	-	2
	Total	**16**	**10**		**16**	**5**		**21**

Program Elective I					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drone Technology)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE511	Unmanned Aerial Vehicle	U11PE521	Aircraft General Engineering and Maintenance	U11PE531	Avionics Engineering
U11PE512	Fatigue and Fracture	U11PE522	Aircraft Electrical Systems Maintenance		

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	
U11PC501	High Speed Aerodynamics	10	10	5	25	50	-	-	75
U11PC502	Aircraft Structures I	10	10	5	25	50	-	-	75
U11PC503	Flight Dynamics	10	10	5	25	50	-	-	75
U11PE5XX	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
U11VS501	Software Proficiency II	-	-	-	-	-	25	25	50
U11PC504	Flight Simulation Lab	-	-	-	-		25	-	25
U11PC505	Aircraft Design Lab	-	-	-	-	-	25	25	50
								Total	525

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

Programme structure for B. Tech: Third year Aeronautical Engineering

(R23) Semester VI: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
U11PC601	Finite Element Method	3	-	-	3	-	-	3
U11PC602	Aircraft Structures II	3	-	-	3	-	-	3
U11PC603	Advanced Aircraft Materials	3	-	-	3	-	-	3
U11PE6XX	Program Elective II	3	-	-	3	-	-	3
U11PE6XX	Program Elective III	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor IV	2	-	-	2	-	-	2
U11PC604	Aircraft Structures Lab	-	4	-	-	2	-	2
U11PC605	Finite Element Method Lab	-	4	-	-	2	-	2
U11PC606	Advanced Aircraft Materials Lab	-	2	-	-	1	-	1
Total		**17**	**10**	**-**	**17**	**5**	**-**	**22**

Program Elective II					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drone Technology)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE611	Heat Transfer	U11PE621	Aero Engine Maintenance	U11PE631	Control Engineering
U11PE612	Vibrations and Aero Elasticity	U11PE622	Airframe Maintenance and Repair		

Program Elective III					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drone Technology)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE613	Rocket Propulsion	U11PE623	Air Traffic Control	U11PE632	Guidance and Control
U11PE614	Flight Controls Systems	U11PE624	Aircraft Technical Publications		

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	
U11PC601	Finite Element Method	10	10	5	25	50	-	-	75
U11PC602	Aircraft Structures II	10	10	5	25	50	-	-	75
U11PC603	Advanced Aircraft Materials	10	10	5	25	50	-	-	75
U11PE6XX	Program Elective II	10	10	5	25	50	-	-	75
U11PE6XX	Program Elective III	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor IV	-	10	5	15	35			50
U11PC604	Aircraft Structures Lab	-	-	-	-	-	25	25	50
U11PC605	Finite Element Method Lab	-	-	-	-		25	25	50
U11PC606	Advanced Aircraft Materials Lab	-	-	-	-	-	25	-	25
								Total	550

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

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
(R23) Semester VII: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
U11PC701	Aircraft Systems	3	-	-	3	-	-	3
U11PC702	Computational Fluid Dynamics	3	-	-	3	-	-	3
U11PE7XX	Program Elective IV	3	-	-	3	-	-	3
U01RM701	Research Methodology	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor V	2	-	-	2	-	-	2
U11PC703	Aircraft Systems Lab	-	4	-	-	2	-	2
U11PC704	Computational Fluid Dynamics Lab	-	4	-	-	2	-	2
U11PE7XX	Program Elective IV Lab	-	4	-	-	2	-	2
U11PR701 **OR** U11EP701 **OR** U11RE701	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**

Th: Theory, Pr: practical, Tu: Tutorial

Program Elective IV					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drones)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE711	Wind Tunnel Techniques	U11PE721	Aircraft Condition Monitoring	U11PE731	UAV Design
U11PE712	Hypersonic Aerodynamics	U11PE722	Helicopter Maintenance		

Program Elective IV Lab					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Maintenance)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE713	Wind Tunnel Techniques Lab	U11PE723	Aircraft Condition Monitoring Lab	U11PE732	UAV Design Lab
U11PE714	Hypersonic Aerodynamics Lab	U11PE724	Helicopter Maintenance Lab		

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				
U11PC701	Aircraft Systems	10	10	5	25	50	-	-	75
U11PC702	Computational Fluid Dynamics	10	10	5	25	50	-	-	75
U11PE7XX	Program Elective IV	10	10	5	25	50	-	-	75
U01RM701	Research Methodology	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor V	-	10	5	15	35	-	-	50
U11PC703	Aircraft Systems Lab	-	-	-	-	-	25	25	50
U11PC704	Computational Fluid Dynamics Lab	-	-	-	-	-	25	25	50
U11PE7XX	Program Elective IV Lab	-	-	-	-	-	25	25	50
U01PR701 **OR** U01EP701 **OR** U01RE701	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

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory , T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

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) Semester VIII: Teaching Scheme

Track I: Industry Internship With Capstone Project Track

Course code	Course name	Teaching scheme			Credits assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total credits
U11PE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
U11PR801	Project Phase II	-	8	-	-	4	-	4
U11OT801	Internship/On job Training	-	24	-	-	12	-	12
	Total	**5**	**32**	**-**	**5**	**16**	**-**	**21**

Th: Theory, Pr: practical, Tu: Tutorial

Program Elective V					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drones)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE811	Lighter Than Air Systems	U11PE821	Civil Aviation Regulations	U11PE831	Aerodynamics for Drones
U11PE812	Experimental Stress Analysis	U11PE822	Airport and Airline Management		

Note: 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.

Semester VIII: Evaluation Scheme

Track I: Industry Internship with Capstone Project Track

Course code	Course name	*Theory Marks*					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
U11PE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
U11PR801	Project Phase II	-	-	-	-	-	50	50	100
U11OT801	Internship/On job Training	-	-	-	-	-	200	100	300
								Total	525

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

- 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
(R23) Semester VIII: Teaching Scheme

Track II: Entrepreneurship Venture Track

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total
U11PE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
U11EP801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
U11EP802	Entrepreneurship project Phase II	-	24	-	-	12	-	12
	Total	**5**	**24**	**-**	**9**	**12**	**-**	**21**

Th: Theory, Pr: practical, Tu: Tutorial

Program Elective V					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drones)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE811	Lighter Than Air Systems	U11PE821	Civil Aviation Regulations	U11PE831	Aerodynamics for Drones
U11PE812	Experimental Stress Analysis	U11PE822	Airport and Airline Management		

Note: 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.

Semester VIII: Evaluation Scheme
Track II: Entrepreneurship Venture Track

Course code	Course name	*Theory Marks*					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
U11PE8XX	Program Elective IV	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
U11EP801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
U11EP802	Entrepreneurship project Phase II	-	-	-	-	-	200	100	300
								Total	525

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory , T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

- 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
(R23) Semester VIII: Teaching Scheme
Track III: Higher Opportunity Track

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Th	Pr	Tu	Th	Pr	Tu	Total
U11PE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
U11RE801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
U11RE802	Research Project Phase II	-	24	-	-	12	-	12
	Total	**5**	**24**	**-**	**9**	**12**	**-**	**21**

Th: Theory, Pr: practical, Tu: Tutorial

Program Elective V					
Vertical I (Design)		**Vertical II (Maintenance)**		**Vertical III (Avionics and Drones)**	
Code	**Course Name**	**Code**	**Course Name**	**Code**	**Course Name**
U11PE811	Lighter Than Air Systems	U11PE821	Civil Aviation Regulations	U11PE831	Aerodynamics for Drones
U11PE812	Experimental Stress Analysis	U11PE822	Airport and Airline Management		

Note: 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.

Semester VIII: Evaluation Scheme

Track III: Higher Opportunity Track

Course code	Course name	*Theory Marks*					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
U11PE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
U11RE801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
U11RE802	Research Project Phase II	-	-	-	-	-	200	100	300
								Total	525

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory , T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

- 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.