КМ09032022

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in Aeronautical Engineering

Scheme of Teaching and Examinations2021 Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2021 - 22)

III SE	MESTER		Lincoln	e iroin the acaden	ine year z	.021 2	<u>-, </u>						
					Teaching	Hours /	Week			Exam	ination		
SI. No	Course and		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	Т	P	S					
1	BSC 21MAT31	to al		Maths	3	1	0		03	50	50	100	3
2	IPCC 21AE32	Proc Proc	raft Materials and resses(+ Manufacturing ress Lab)	TD: PSB	3	0	2		03	50	50	100	4
3	IPCC 21AE33	Mec	d Mechanics (+ Fluid hanics Lab)	PSB 3 0 2			03	50	50	100	4		
4	PCC 21AE34		nents of Aeronautics (EoA)	TD: PSB	3	0	0		03	50	50	100	3
5	PCC 21AEL35	CA Airc	AD (Computer Aided raft Drawing)	TD: PSB	0	0	2		03	50	50	100	1
6	UHV 21UH36	Socia	al Connect and Responsibility	Any Department	0	0	1		01	50	50	100	1
	HSMC 21KSK37/4	Sam:	skrutika Kannada										
7	HSMC 21KBK37/4	Balal	ke Kannada	TD and PSB: HSMC	1	0	0		01	50	50	100	1
	HSMC 21CIP37/4		OR titution of India and essional Ethics										
	-			TD: Concerned	If offer	ed as Th	eory Co	urse	01				
8	AEC 21XX38X	Abili	ty Enhancement Course - III	department PSB: Concerned Board	1 If offe	0 ered as l	0 ab. cour 2	se	02	50	50	100	1
									Total	400	400	800	18
	s for ers	NMDC 21NS83	National Service Scheme (NSS)	NSS	All students have to register for any one of the National Service Scheme, Physical Education (Athletics) and Yoga with the concerned coordinate during the first week of III semester. The activities				tion (Pi rdinator	E)(Sports of the co	and ourse		
9	activities f	NMDC 21PE83	Physical Education (PE)(Sports and Athletics)	PE	out fron SEE in t	n (for 5 he abov	semeste e cours	ers) be es sha	etween II be co	III seme	ester to d during	VIII seme	ester. ester
	Scheduled activities for III to VIII semesters	NMDC 21YO83	Yoga	Yoga	examinations and the accumulated CIE marks shall be ad SEE marks. Successful completion of the registered mandatory for the award of the degree. The events shall be appropriately scheduled by the colleg same shall be reflected in the colander prepared for the N Yoga activities.						red cours	se is d the	
	Γ	Course	prescribed to lateral entry	Diploma holders a	dmitted t	to III se	mester	B.E./	B.Tech	progra	ms		
1	NCMC 21MATDIP3	31	Additional Mathematics - I	Maths	02	02				100		100	0

Note: BSC: Basic Science Course, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **INT** –Internship, Social Science & Management Courses, **AEC**–Ability Enhancement Courses. **UHV:** Universal Human Value Course.

L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination. TD-Teaching Department, PSB: Paper Setting department

21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and 21KBK37/47 Balake Kannada is for non-Kannada speaking, reading, and writing students.

Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practicals of the same course. Credit for IPCC can be 04 and its Teaching—Learning hours (L:T:P) can be considered as (3:0:2) or (2:2:2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech.) 2021-22 may be

referred.

21INT49 Inter/Intra Institutional Internship: All the students admitted to engineering programs under the lateral entry category shall have to undergo a mandatory 21INT49 Inter/Intra Institutional Internship of 03 weeks during the intervening period of III and IV semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the IV semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequently after satisfying the internship requirements. The faculty coordinator or mentor shall monitor the students' internship progress and interact with them for the successful completion of the internship.

Non-credit mandatory courses (NCMC):

(A) Additional Mathematics I and II:

- (1) These courses are prescribed for III and IV semesters respectively to lateral entry Diploma holders admitted to III semester of B.E./B.Tech., programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and has no SEE.
- (2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.
- (3) Successful completion of the courses Additional Mathematics I and II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics I and II shall be indicated as Unsatisfactory.
- (B) National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:
- (1) Securing 40 % or more in CIE,35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.
- (2) In case, students fail to secure 35 % marks in SEE, they has to appear for SEE during the subsequent examinations conducted by the University.
- (3)In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks.
- (4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.
- (5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

be mandater;	to managery for the arranger webles.									
	Ability Enhancement Course - III									
21AE381	Development of Soft Skills for Engineers	21AE383	Digitalization in Aeronautics							
21AE382	21AE382 Ethics, Technology and Engineering 21AE384 Coding literacy									

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IV SEMESTER

			_	Tea	ching I	Hours /W	eek		Exam	ination	•	
SI. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Theory	I Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
	BSC			L	Т	P	S					
1	21MAT41	MATHEMATICS IV	Maths	3	2	0		03	50	50	100	3
2	IPCC 21AE42	Aerodynamics (+ Aerodynamics lab)	TD: PSB	3	0	2		03	50	50	100	4
3	IPCC 21AE43	Aero Engineering Thermodynamics (+ Energy Conversion+ Heat & Mass Transfer Labs)	TD: PSB	3	0	2		03	50	50	100	4
4	PCC 21AE44	Mechanics of Materials	TD: PSB	3	1	0		03	50	50	100	3
5	AEC 21BE45	Biology For Engineers	BT, CHE, PHY	2	0	0		02	50	50	100	2
6	PCC 21AEL46	Hydraulics and Pneumatics Systems Lab	TD: PSB	0	0	2		03	50	50	100	1
	HSMC 21KSK37/47	Samskrutika Kannada										
7	HSMC 21KBK37/47	Balake Kannada	HSMC	1	0	0		01	50	50	100	1
	HSMC 21CIP37/47	OR Constitution of India & Professional Ethics	_									
			TD and PSB:			theory (Course	01				
8	AEC 21AE48X	Ability Enhancement Course- IV	Concerned department	1 If off	0 fered a	0 as lab. co	ourse		50	50	100	1
				0	0	2		02				
9	UHV 21UH49	Universal Human Values	Any Department	1	0	0		01	50	50	100	1
10	INT 21INT49	Inter/Intra Institutional Internship	Evaluation By the appropriate authorities	studer year during period semes	ening III s ints ad of Bi it the it of ters b ints ac	during period emester mitted t E./B.Tecl e inter III ar y Latera	of II rs by to first n and vening nd IV I entry	3	100		100	2
	<u> </u>	1						Total	550	450	1000	22
		urse prescribed to lateral entry Dinlo									_ 1	1000

(Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs												
1 NCMC	Additional Mathematics - II	Maths	02	02				100		100	0		

Note: BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course, AEC —Ability Enhancement Courses, HSMC: Humanity and Social Science and Management Courses, UHV- Universal Human Value Courses.

L – Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and 21KBK37/47 Balake Kannada is for non-Kannada speaking, reading, and writing students.

Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practicals of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L:T:P) can be considered as (3:0:2) or (2:2:2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from practical part of IPCC shall be included in the SEE question paper. For more details the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech.) 2021-22 may be referred.

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Non – credit mandatory course (NCMC):

Additional Mathematics - II:

(1) Lateral entry Diploma holders admitted to III semester of B.E./B.Tech., shall attend the classes during the IV semester to complete all the formalities of the course and appear for the Continuous Internal Evaluation (CIE). In case, any student fails to register for the said course/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured an F grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s to earn the qualifying CIE marks. These courses are slated for CIE only and has no SEE.

(2) Additional Mathematics I and II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

(3) Successful completion of the course Additional Mathematics II shall be indicated as satisfactory in the grade card. Non-completion of the courses Additional Mathematics II shall be indicated as Unsatisfactory.

	Ability Enhancement Course - IV										
21AE481	The Science of Well-being	21AE483	Flight Mechanics- The basis								
21AE482	Design Thinking for Innovation	21AE484	Introduction to programming with MATLAB and Python								

Internship of 04 weeks during the intervening period of IV and V semesters; 21INT68 Innovation/ Entrepreneurship/ Societal based Internship.

- (1) All the students shall have to undergo a mandatory internship of 04 weeks during the intervening period of IV and V semesters. The internship shall be slated for CIE only and will not have SEE. The letter grade earned through CIE shall be included in the VI semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be considered under F (fail) grade and shall have to complete during subsequently after satisfying the internship requirements.
- (2) Innovation/ Entrepreneurship Internship shall be carried out at industry, State and Central Government /Non-government organizations (NGOs), micro, small and medium enterprise (MSME), Innovation centers or Incubation centers. Innovation need not be a single major breakthrough, it can also be a series of small or incremental changes. Innovation of any kind can also happen outside of the business world.

Entrepreneurship internships offers a chance to gain hands on experience in the world of entrepreneurship and helps to learn what it takes to run a small entrepreneurial business by performing intern duties with an established company. This experience can then be applied to future business endeavours. Start-ups and small companies are a preferred place to learn the business tack ticks for future entrepreneurs as learning how a small business operates will serve the intern well when he/she manages his/her own company. Entrepreneurship acts as a catalyst to open the minds to creativity and innovation. Entrepreneurship internship can be from several sectors, including technology, small and medium-sized, and the service sector.

(3) Societal or social internship.

Urbanization is increasing on a global scale; and yet, half the world's population still resides in rural areas and is devoid of many things that urban population enjoy. Rural internship, is a work-based activity in which students will have a chance to solve/reduce the problems of the rural place for better living.

As proposed under the AICTE rural internship programme, activities under Societal or social internship, particularly in rural areas, shall be considered for 40 points under AICTE activity point programme.

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(Effective from the academic year 2021 - 22)

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			_	Teachi	ng Hours	/Week			Exami	nation		
SI. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
			٥	L	Т	Р	S				_	
1	BSC 21AE51	Mechanism and Machine Theory	TD: PSB	3	0	0		03	50	50	100	3
2	IPCC 21AE52	Aircraft Propulsion (+ Propulsion Lab)	TD: PSB	3	0	2		03	50	50	100	4
3	PCC 21AE53	Aero structures	TD: PSB	3	1	0		03	50	50	100	3
4	PCC 21AE54	Aircraft Performance and Stability	TD: PSB	3	1	0		03	50	50	100	3
5	PCC 21AEL55	Advanced Aircraft Structures Lab	TD: PSB	0	0	2		03	50	50	100	1
6	AEC 21AE56	Research Methodology & Intellectual Property Rights	TD: Any Department PSB: As identified by University	2	0	0		02	50	50	100	2
7	HSMC 21CIV57	Environmental Studies	TD: Civil/ Environmental /Chemistry/ Biotech. PSB: Civil Engg	1	0	0		1	50	50	100	1
				If offe	red as	Theory c	ourses	01				
8	AEC	Ability Enhancement Course-V	Concerned	1	0	0		01	50	50	100	1
J	21AE58X	Assety Emiliancement course v	Board			ered as lab. courses			30		100	_
				0	0	2		02				
								Total	400	400	800	18

	Ability Enhanc	ement Course	e - V
21AE581	DRONE Pilot Training	21AE583	Virtual Aircraft Simulation
21AF582	Introduction to Swarm Drone	21AF584	Multi-disciplinary Research in Aeronautical Engineering

Note: BSC: Basic Science Course, PCC: Professional Core Course, IPCC: Integrated Professional Core Course, AEC – Ability Enhancement Course INT – Internship, HSMC: Humanity and Social Science & Management Courses.

L –Lecture, T – Tutorial, P- Practical/ Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

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(Effective from the academic year 2021 - 22)

VI SI	EMESTER											
	Teaching Hours /Week								Exami	nation		
SI. No	Course and Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Theory	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
				L	T	P	S					
1	HSMC 21AE61	Aviation Management	TD: PSB	3	0	0		03	50	50	100	3
2	IPCC 21AE62	Aircraft Systems and Avionics (+ Avionics Lab)	TD: PSB	3	0	2		03	50	50	100	4
3	PCC 21AE63	Gas Turbine Technology	TD: PSB	3	0	0		03	50	50	100	3
4	PEC 21AE64x	Professional Elective Course-I	TD: PSB	3	0	0		03	50	50	100	3
5	OEC 21AE65x	Open Elective Course-I	Concerned Department	3	0	0		03	50	50	100	3
6	PCC 21AEL66	Flight Modelling, Analysis and Simulation Lab	TD: PSB	0	0	2		03	50	50	100	1
7	MP 21AEMP67	Mini Project	TD: PSB	Two con interacti faculty a	ion bet	ween th			100		100	2
8	INT 21INT68	Innovation/Entrepreneurship /Societal Internship	Completed duri		rvenin	g period	of IV		100		100	3
								Total	500	300	800	22

	P	rofessional Elective -	l
PEC	Flight Vehicle Design	PEC	Computational Fluid Flow and Heat Transfer
21AE641		21AE643	
PEC	Composite Materials and Structures	PEC	Principles of Flight Simulation
21AE642		21AE644	
Open Electi	ves – I offered by the Department to other Departm	ent students	
OEC	Introduction to Aerospace History	OEC	Indian Aviation
		21AE653	
21AE651			
21AE651 OEC	Introduction to Helicopters	OEC	Airline and Airport Management

Note: HSMC: Humanity and Social Science & Management Courses, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **PCC:** Professional Elective Courses, **OEC**—Open Elective Course, **MP**—Mini Project, INT—Internship.

L –Lecture, T – Tutorial, P - Practical / Drawing, S – Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical of the same course. Credit for IPCC can be 04 and its Teaching – Learning hours (L:T:P) can be considered as (3:0:2) or (2:2:2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by CIE only and there shall be no SEE. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (BE/B.Tech) 2021-22 may be referred.

Professional Elective Courses(PEC):

A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course out of five course. The minimum students' strength for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the programme is less than 10.

Open Elective Courses:

Students belonging to a particular stream of Engineering and Technology are not entitled for the open electives offered by their parent Department. However, they can opt an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor.

Selection of an open elective shall **not be allowed** if,

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- (i) The candidate has studied the same course during the previous semesters of the program.
- (ii) The syllabus content of open electives is similar to that of the Departmental core courses or professional electives.
- (iii) A similar course, under any category, is prescribed in the higher semesters of the program.

In case, any college is desirous of offering a course (not included in the Open Elective List of the University) from streams such as Law, Business (MBA), Medicine, Arts, Commerce, etc., can seek permission, at least one month before the commencement of the semester, from the University by submitting a copy of the syllabus along with the details of expertise available to teach the same in the college.

The minimum students' strength for offering open electives is 10. However, this conditional shall not be applicable to cases where the admission to the programme is less than 10.

Mini-project work: Mini Project is a laboratory-oriented course which will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications.

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

- (i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.
- (ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

No SEE component for Mini-Project.

VII semester Classwork and Research Internship /Industry Internship (21INT82)

Swapping Facility

Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship after the VI semester.

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

Elucidation:

At the beginning of IV year of the programme i.e., after VI semester, VII semester classwork and VIII semester Research Internship /Industrial Internship shall be permitted to be operated simultaneously by the University so that students have ample opportunity for internship. In other words, a good percentage of the class shall attend VII semester classwork and similar percentage of others shall attend to Research Internship or Industrial Internship.

Research/Industrial Internship shall be carried out at an Industry, NGO, MSME, Innovation centre, Incubation centre, Start-up, Centers of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations / institutes. The intership can also be rural internship.

The mandatory Research internship /Industry internship is for 24 weeks. The internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up/complete the internship shall be declared fail and shall have to complete during the subsequent University examination after satisfying the internship requirements.

INT21INT82 Research Internship/ Industry Internship/Rural Internship

Research internship: A research internship is intended to offer the flavour of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industry internship: Is an extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

Rural internship: A long-term goal, as proposed under the AICTE rural internship programme, shall be counted as rural internship activity.

The student can take up Interdisciplinary Research Internship or Industry Internship.

The faculty coordinator or mentor has to monitor the students' internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of internship.

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B.E. in Aeronautical Engineering

Scheme of Teaching and Examinations 2021

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

			Outcome Based Educ	ation(OBE) and ive from the ac			-	em (CB	CS)				
Swap	pable	VII and VIII	·	ive from the ac	aucime yea	1 2021	22)						
VII S	EMES	TER											
SI. No		ourse and ourse Code	Course Title	Teaching Department (TD) and Question Paper Setting		Tutorial	Practical/ Span Span Span Span Span Span Span Span	Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
				۵	L	Т	Р	S					
1	PCC 21A		Conjugate Heat Transfer(CHT)	TD: PSB	3	1	0		3	50	50	100	3
2	PCC 21A		Control Engineering	TD: PSB	3	0	0		3	50	50	100	2
3	PEC 21A	E72X	Professional elective Course-II	TD: PSB	3	0	0		3	50	50	100	3
4	PEC 21A	E73X	Professional elective Course-III	TD: PSB	3	0	0		3	50	50	100	3
5		E74X	Open elective Course-II	Concerned Departmen	t 3	0	0		3	50	50	100	3
6	Project Project work Two contact hours /week fo TD: PSB interaction between the faculty and students.						the	3	100	100	200	10	
								Total	350	350	700	24	
VIII	SEMESTER												
					Teachi	ng Hours	/Week	1		Exan	nination		
SI. No		ourse and ourse Code	Course Title	Teaching Department	Theory	⊥ Tutorial	Practical/ Drawing	ە Self -Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	Sem 21A	ninar E81	Technical Seminar	TD: PSB	One c	One contact hour /week for interaction between the faculty and students.				100)	100	01
2	INT 21IN	NT82	Research Internship/ Industry Internship	TD: PSB	Two co	ontact h	ours /wo betweer d studer	eek for n the	03 (Batch wise)	100	100	200	15
3	NCMC	21NS83 21PE83 21YO83	National Service Scheme (NSS) Physical Education (PE) (Sports and Athletics) Yoga	NSS PE Yoga	inte	the of III ester.		50	50	100	0		
	211063 10ga 10ga								Tota	l 250	150	400	16
				Drofessions	l Elective								
214	E721	Win	d Tunnel Techniques	Professiona	21AE724		at and M	ass Tran	nsfer				
21AI	E722 E723	Heli	copter Dynamics ht Testing		21AE725				ospace A	pplicati	ons		
				Drofees!===	l Elosti	111							
21Δ	E731	Sna	ce Mechanics	Professiona	21AE734		ory of A	ircraft V	ibration	S			
	E732		craft Maintenance, Repair and Overhau	ıl	21AE735				nce & En		ng		
21AI	E733		tem Engineering										
				l									

	Open Electives - II offered by the Department to other Department students										
21AE741	Earth and Space Science	21AE744	Industrial Aerodynamics								
21AE742	Aviation and Internet Infrastructure	21AE745	Basics of Flight Simulation								
21AE743	Air Traffic and Weather										

Note: PCC: Professional Core Course, PEC: Professional Elective Courses, OEC—Open Elective Course, AEC—Ability Enhancement Courses.

L—Lecture, T—Tutorial, P- Practical / Drawing, S—Self Study Component, CIE: Continuous Internal Evaluation, SEE: Semester End Examination.

Note: VII and VIII semesters of IV year of the programme

- (1) Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/industry internship after the VI semester.
- (2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the programme.

PROJECT WORK (21XXP75): The objective of the Project work is

- (i) To encourage independent learning and the innovative attitude of the students.
- (ii) To develop interactive attitude, communication skills, organization, time management, and presentation skills.
- (iii) To impart flexibility and adaptability.
- (iv) To inspire team working.
- (v) To expand intellectual capacity, credibility, judgment and intuition.
- (vi) To adhere to punctuality, setting and meeting deadlines.
- (vii) To instil responsibilities to oneself and others.
- (viii)To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

CIE procedure for Project Work:

(1) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(2) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

TECHNICAL SEMINAR (21XXS81): The objective of the seminar is to inculcate self-learning, present the seminar topic confidently, enhance communication skill, involve in group discussion for exchange of ideas. Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the programme of Specialization.

- (i) Carry out literature survey, systematically organize the content.
- (ii) Prepare the report with own sentences, avoiding a cut and paste act.
- (iii) Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities.
- (iv) Present the seminar topic orally and/or through PowerPoint slides.
- (v) Answer the queries and involve in debate/discussion.
- (vi) Submit a typed report with a list of references.

The participants shall take part in the discussion to foster a friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.

Evaluation Procedure:

The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session, and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior-most acting as the Chairman.

Marks distribution for CIE of the course:

Seminar Report:50 marks

Presentation skill:25 marks

Question and Answer: 25 marks. ■ No SEE component for Technical Seminar

Non – credit mandatory courses (NCMC):

National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:

- (1) Securing 40 % or more in CIE,35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.
- (2) In case, students fail to secure 35 % marks in SEE, they has to appear for SEE during the subsequent examinations conducted by the University.
- (3)In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequently to earn the qualifying CIE marks subject to the maximum programme period.
- (4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.
- (5) These course shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.