RAMAIAH UNIVERSITY OF APPLIED SCIENCES

Programme Specifications

B. Tech. Programme

Programme: Aerospace Engineering	Department: Aerospace Engineering

Faculty of Engineering & Technology

M.S. Ramaiah University of Applied Sciences

COURSE SPECIFICATIONS: Aerospace Engineering

Faculty	Engineering and Technology (FET)
Department	Automotive and Aeronautical Engineering
Course	Aerospace Engineering
Dean of Faculty	Prof. M Arulanantham
Head of Department	Prof. R. Raja

1	**Title of the Award** B.Tech. in Aerospace Engineering	
2	**Modes of Study** Full Time	
3	**Awarding Institution /Body** M.S. Ramaiah University of Applied Sciences	
4	**Joint Award** Not Applicable	
5	**Teaching Institution** Faculty of Engineering and Technology, M.S. Ramaiah University of Applied Sciences	
6	**Date of Course Specifications** May 2019	
7	**Date of Course Approval by the Academic Council of MSRUAS** June 2019	
8	**Next Review Date:** May 2013	
9	**Course Approving Regulating Body and Date of Approval** --	
10	**Course Accredited Body and Date of Accreditation** --	
11	**Grade Awarded by the Accreditation Body** --	
12	**Course Accreditation Validity** --	
13	**Course Benchmark** N/A	
14	**Rationale for the Programme** Aerospace sector in India has seen robust growth and most big OEMs and service sector giants can be found in here. India is home to government organisations like Defence Research and Development Organisation (DRDO), Aeronautical Development Agency (ADA), Council for Scientific and Industrial Research (CSIR), Hindustan Aeronautics Limited (HAL), and private enterprises like Boeing, Airbus, General Electric, Pratt and Whitney, SNECMA, Honeywell, Goodrich Aerospace. Some are involved in Aerospace research and development, while others provide engineering services. Their already high annual average growth rate is likely to be boosted by the 'off-set' clause included by Government of India in all major aerospace transaction. High competitiveness in the airline sector has forced the manufacturers to not only continuously improve their product but also introduce cutting edge technology in their products. Aerospace industry traditionally has pushed technological boundaries in a bid to meet the ever increasing demand for faster, safer and cheaper travel. With the available experienced person power and infrastructure in the areas of fluid mechanics, structural engineering and propulsion, the University will be able to support their requirement for advanced products.	

	Aerospace is a highly interdisciplinary subject where there is interaction between aerodynamicists, structural engineers, manufacturers and electronic engineers. In this situation, University gives an ideal platform for the students as they are exposed to different disciplines and thereby increase their breadth of knowledge in aeronautics. The department is staffed with professors with extensive experience in national aerospace projects, excellent infrastructure and has developed a reputation amongst students, parents, industry and research sponsors. The faculty of engineering and technology plans for producing Aerospace engineers who can compete with students from the best universities in the world.
15	**Programme Mission** The purpose of the programme is creation of innovative problem solvers in multi-disciplinary settings, entrepreneurs and leaders applying the knowledge, understanding, cognitive abilities, practical skills and transferrable skills gained through systematic, flexible and rigorous learning in the chosen academic domain
16	**Graduate Attributes** 1. Ability to apply knowledge of mathematics, science, and Engineering fundamentals to solve complex problems in engineering 2. Ability to analyse engineering problems, interpret data and arrive at meaningful conclusions involving mathematical inferences 3. Ability to design an engineering system, component, or process to meet desired needs considering public health and safety, and the cultural, societal, and environmental considerations 4. Ability to understand and solve complex engineering problems by conducting experimental investigations 5. Ability to apply appropriate tools and techniques and understand utilization of resources appropriately to complex engineering activities 6. Ability to understand the effect of engineering solutions on legal, cultural, social and public health and safety aspects 7. Ability to develop sustainable solutions and understand their effect on society and environment 8. Ability to apply ethical principles to engineering practices and professional responsibilities 9. Ability to work as a member of a team, to plan and to integrate knowledge of various engineering disciplines and to lead teams in multidisciplinary settings 10. Ability to make effective oral presentations and communicate technical ideas to a broad audience using written and oral means 11. Ability to lead and manage multidisciplinary teams by applying engineering and management principles 12. Ability to adapt to the changes and advancements in technology and engage in independent and life-long learning
17	**Programme Goal** The programme goal is to produce graduates with critical, analytical and problem solving skills, and ability to think independently, to pursue a career in Aerospace Engineering.

18	**Programme Objectives**
	The Aerospace Engineering degree programme will impart knowledge of various aerospace systems and their sub systems; enhance the understanding of underlying engineering principles that govern the behavior of aerospace systems; teach analytical modeling, simulation and analysis to study the behavior of different aerospace systems; provide the skills to design, build and test sub-systems. It also trains students on personal development and interactive skills with a feel for society.
	The objectives of the programme are:
	1. To impart knowledge on aerospace systems and their sub-systems
	2. To facilitate the understanding of underlying engineering principles of aerospace systems to explain their construction and working
	3. To model, simulate and analyze the behavior of aerospace sub-systems systems to predict and improve their performance
	4. To design and develop prototypes of aerospace sub-systems to meet the specific needs
	5. To instrument and test of aerospace sub-systems for validation
	6. To train students on commercial software tools to design, model, simulate aerospace sub-systems
	7. To train students on design and fabrication of aerospace sub-systems
	8. To educate on professional ethics, economics, social sciences and interpersonal skills relevant to professional practice
	9. To provide a general perspective on lifelong learning and opportunities for a career in industry, business and commerce
19	**Programme Intended Learning Outcomes**
	The intended learning outcomes are listed under four headings:
	1. Knowledge and Understanding, 2. Cognitive skills 3. Practical skills and
	4. Capability / Transferable skills.
	Knowledge and Understanding
	After undergoing this programme, a student will be able to-
	KU1: Identify and describe the various systems of relevance to aerospace engineering
	KU2: Explain the underlying science and engineering principles that govern the systems/processes relevant to aerospace engineering
	KU3: Compare and contrast newer technologies over the existing technologies
	KU4: Collect, classify and interpret information relevant to aerospace engineering
	Cognitive Skills
	After undergoing this programme, a student will be able to-
	CS1: Design Aerospace systems/processes based on the desired function
	CS2: Model and simulate aerospace systems to analyze the behavior
	CS3: Modify the existing design/processes to meet newer requirements
	CS4: Apply science and engineering principles to evaluate performance of aerospace systems and answer "what if" questions

Practical Skills

After undergoing this programme, a student will be able to-

PS1: Manufacture/Fabricate aerospace components and assemble the system

PS2: Instrument a system and test for its performance

PS3: Operate and maintain a aerospace system for efficient and safe operations

PS4: Program/Control a aerospace system to deliver desired level of performance

Capability Skills / Transferrable Skills

After undergoing the programme, a student will be able to-

TS1: Manage information, develop technical reports and make presentations

TS2: Build, Manage and Lead a team to successfully complete a project and communicate across teams and organizations to achieve professional objectives

TS3: Work under various constraints to meet project targets

TS4: Adopt to the chosen profession by continuously upgrading his/her knowledge and understanding through Life-long Learning philosophy

20 | **Programme Structure**
Semester: 1, Physics Cycle

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC101A	Engineering Mathematics-1	3	2	0	4	100
2	18BSC102A	Engineering Physics	3	2	0	4	100
3	18ESC101A	Elements of Mechanical Engineering	3	0	0	3	100
4	18ESC102A	Elements of Electronics Engineering	3	2	0	4	100
5	18ESC103A	Engineering Drawing	1	0	4	3	100
6	18BSL103A	Engineering Physics Laboratory	0	0	2	1	50
7	18ESL104A	Basic Workshop Practice	0	0	2	1	50
8	18ESL105A	Basic Electronics Laboratory	0	0	2	1	50
9	18HST101A	Elements of Social Sciences and Ethics	2	0	0	2	50
		Total	**15**	**6**	**10**	**23**	**700**
	Total number of contact hours per week		**31 hours**				
	Number of credits can be registered		**Minimum**	**18**	**Maximum**		**23**

Semester: 2, Chemistry Cycle

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC104A	Engineering Mathematics - 2	3	2	0	4	100
2	18BSC105A	Engineering Chemistry	3	0	0	3	100
3	18ESC106A	Engineering Mechanics and Construction Materials	3	2	0	4	100
4	18ESC107A	Elements of Electrical Engineering	3	2	0	4	100
5	18ESC108A	Elements of Computer Science and Engineering	3	2	0	4	100
6	18ESL109A	Computer Programming Laboratory	0	0	2	1	50
7	18BSL106A	Engineering Chemistry Laboratory	0	0	2	1	50
8	18ESL110A	Basic Electrical Engineering Laboratory	0	0	2	1	50
9	18HST102A	Professional Communication	2	0	0	2	50
		Total	**17**	**8**	**6**	**24**	**700**
	Total number of contact hours per week		**31 hours**				
	Number of credits can be registered		**Minimum**	**20**	**Maximum**		**24**

Semester: 1 Chemistry Cycle

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC101A	Engineering Mathematics-1	3	2	0	4	100
2	18BSC105A	Engineering Chemistry	3	0	0	3	100
3	18ESC106A	Engineering Mechanics and Construction Materials	3	2	0	4	100
4	18ESC107A	Elements of Electrical Engineering	3	2	0	4	100
5	18ESC108A	Elements of Computer Science and Engineering	3	2	0	4	100
6	18BSL109A	Engineering Chemistry Laboratory	0	0	2	1	50
7	18ESL106A	Basic Electrical Laboratory	0	0	2	1	50
8	18ESL110A	Computer Programming Laboratory	0	0	2	1	50
9	18HST102A	Professional Communication	2	0	0	2	50
		Total	**17**	**8**	**6**	**24**	**700**
	Total number of contact hours per week		**31 hours**				
	Number of credits can be registered		**Minimum**	**20**	**Maximum**		**24**

Semester : 2, Physics Cycle

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC104A	Engineering Mathematics-2	3	2	0	4	100
2	18BSC102A	Engineering Physics	3	2	0	4	100
3	18ESC101A	Elements of Mechanical Engineering	3	0	0	3	100
4	18ESC102A	Elements of Electronics Engineering	3	2	0	4	100
5	18ESC103A	Engineering Drawing	1	0	4	3	100
6	18BSL103A	Engineering Physics Laboratory	0	0	2	1	50
7	18ESL104A	Basic Workshop Practice	0	0	2	1	50
8	18ESL105A	Basic Electronics Laboratory	0	0	2	1	50
9	18HST101A	Elements of Social Science	2	0	0	2	50
		Total	**15**	**6**	**10**	**23**	**700**
	Total number of contact hours per week		**31 hours**				

			Minimum	18	Maximum	23
Number of credits can be registered						

Semester: 3

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19MHB201A	Engineering Mathematics - 3	2	2	0	4	100
2	19ASC202A	Materials Science for Engineers	3	0	0	3	100
3	19ASC203A	Introduction to Aerospace Systems	3	0	0	3	100
4	19ASC204A	Thermodynamics for Engineers	4	0	0	4	100
5	19ASC205A	Fluid Mechanics and Machines	3	1	0	4	100
6	19ASL206A	Aeromodelling Laboratory	0	0	2	1	50
7	19ASL207A	Fluid Mechanics and Machines Laboratory	0	0	2	1	50
8	19CEM210A	Environmental Studies	2	0	0	0	Audit
		Total	**18**	**3**	**4**	**20**	**600**
Total number of contact hours per week			**25 Hours**				
Number of Credits can be registered			**Minimum**	**16**	**Maximum**	**20**	

Semester: 4

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19MHB211A	Engineering Mathematics - 4	2	2	0	4	100
2	19ASC212A	Strength of Materials	3	1	0	4	100
3	19ASC213A	Manufacturing Processes for Aerospace Systems	3	0	0	3	100
4	19ASC214A	3D Modeling and Machine Drawing	1	0	4	3	100
5	19ASC215A	Aeordynamics-1	3	0	0	3	100
6	19ASL216A	Materials and Testing Laboratory	0	0	2	1	50
7	19ASL217A	Manufacturing Processes Laboratory	0	0	2	1	50
8	19ASL218A	Aerodynamics Laboratory	0	0	2	1	50
		Total	**12**	**3**	**10**	**20**	**650**
Total number of contact hours per week			**25 Hours**				

	Number of Credits can be registered		Minimum	16	Maximum	20

Semester 5

S. No	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19ASC301A	Aerospace Structures	3	1	0	4	100
2	19ASC302A	Theory of Machines and Mechanisms	3	0	0	3	100
3	19ASC303A	Aerodynamics -2	4	0	0	4	100
4	19ASC304A	Aircraft Performance, Stability and control	3	0	0	3	100
5	19ASC305A	Aerospace Propulsion-1	3	1	0	4	100
6	19ASL306A	Aerospace Structures Laboratory	0	0	2	1	50
7	19ASL307A	Aerospace Propulsion Laboratory	0	0	2	1	50
		Total	**15**	**3**	**4**	**20**	**600**
	Total number of contact hours per week		**22 hours**				
	Number of Credits can be registered		**Minimum**	**16**	**Maximum**	**20**	

Semester-6

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19ASC311A	Aerospace Propulsion -2	3	1	0	4	100
2	19ASC312A	Engineering Economics	3	0	0	3	100
3	19ASC313A	Finite Element Analysis	3	1	0	4	100
4	19ASC314A	Control System Engineering	4	0	0	4	100
5	19ASC315A	Computational Fluid Dynamics	3	0	0	3	100
6	19ASL316A	CFD Laboratory	0	0	2	1	50
7	19ASL317A	CAE Practices for Aerospace Application	0	0	2	1	50
		Total	**16**	**2**	**4**	**20**	**600**
	Total number of contact hours per week		**22 hours**				
	Number of Credits can be registered		**Minimum**	**16**	**Maximum**	**20**	

Semester-7

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19ASE41XA	Professional Core Elective -1	4	0	0	4	100
2	19ASE42XA	Professional Core Elective -2	4	0	0	4	100
	19ASE43XA	Professional Core Elective -3	4	0	0	4	100
3	19ASO41XA	Open Elective-1	3	0	0	3	100
4	19ASP401A	Seminar	0	0	2	2	50
5	19ASP402A	i) Project -I	0		12	6	100
	19ASP403A	ii) Internship (Any one)					
		Total	**15**	**0**	**14**	**23**	**550**
	Total number of contact hours per week		**29 Hours**				
	Number of Credits can be registered		**Minimum**	**19**	**Maximum**	**23**	

Note: Internship can be in any Industry, Business, University or Research organization in India or abroad

Semester-8

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19ASE44XA	Professional Core Elective -4	4	0	0	4	100
2	19ASO42XA	Open Elective -2	3	0	0	3	100
3	19ASP403A	Project Work -2	0	0	20	10	100
		Total	**7**	**0**	**24**	**17**	**300**
	Total number of contact hours per week		**19 Hours**				
	Number of Credits can be registered		**Minimum**	**13**	**Maximum**	**17**	

Professional Core Electives (PCE):

Name of the Specialisation	PCE - 1		PCE - 2		PCE - 3	
	Code	Course Title	Code	Course Title	Code	Course Title
Aerospace Vehicles	19ASE 411A	Conceptual Aircraft Design	19ASE 421A	Unmanned Air Vehicles	19ASE 431A	Launch Vehicles and Missiles
Aircraft Structures	19ASE 412A	Aerospace Structural Dynamics	19ASE 422A	Composite Structures	19ASE 432A	Engineering Optimization
Aerospace materials	19ASE 413A	Light Wight and Novel Materials	19ASE 423A	Testing Techniques for Aerospace Systems	19ASE 433A	Advanced Manufacturing Techniques
Flow Dynamics	19ASE 414A	Advanced Fluid Mechanics	19ASE 424A	Advanced Computational Fluid Dynamics	19ASE 434A	Helicopter Aerodynamics
Data Sciences and Analytics	19MT B401A	Probability and Statistics	19CSE 421A	Data Sciences Foundation	19CSE 431A	Data Sciences Algorithms and applications

The table above is headed: **7th Semester**

Note: Totally student needs to select three professional core elective courses during 7th Semester and each one course from PCE-1, PECE-2and PCE-3

Name of the Specialisation	PCE - 4	
	Course Code	Course Title
Aerospace Vehicles	19ASE441A	Combat and Transport Aircrafts
Aircraft Structures	19ASE442A	Fatigue and Fracture Mechanics
Aerospace materials	19ASE443A	Surface Engineering
Flow Dynamics	19ASE444A	Hypersonic Flow
Data Sciences and Analytics	19CSE441A	Data Analytics

The table above is headed: **8th Semester**

Note: Student needs to select any one professional core elective course during 8th Semester

Open Electives:

A number of electives from faculty of engineering, management and commerce, art and design, hospitality management and catering technology, pharmacy, dental sciences as mentioned in university website. Students can choose the open electives on their own choice.

21	**Course Delivery**
	As per the Time Table
22	**Teaching and Learning Methods**
	1. Face to Face Lectures using Audio-Visuals
	2. Workshops, Group Discussions, Debates, Presentations
	3. Demonstrations
	4. Guest Lectures
	5. Laboratory work /Field work / Workshop
	6. Industry Visit
	7. Seminars
	8. Group Exercises
	9. Project Work
	10. Project Exhibitions
	11. Technical Festivals

23   1. Assessment and Grading

1. Every course will be assessed for a weight of 100%

2. For the courses having 100% theory

   There are two components-Component-1 and Component-2

   Component-1 (CE) carries a weight of 50% and Component -2 (SEE) carries a weight of 50%

   Component-1 (CE): 50% weight

   The course leader will indicate the mode of assessment in consultation and approval of the respective HoD and the faculty Dean, before commencement of the semester.

   The template for weightage of CE and SEE in percentages for each theory course is indicated in Table below.

ILO No.	Intended Learning Outcome	CE (Weightage: 50 %)				SEE (Weightage: 50 %)
		Assessment Type	Comp-1a	Comp-1b	Comp-1c	
		Comp Weightage (%)	00	00	00	Sem End Exam
1	ILO-1					
2	ILO-2					
3	ILO-3					
4	ILO-4					
5	ILO-5					
6	ILO-6					

CE – can be from any combination of the following:

Assignments, term Tests, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, others, if any.

   Component - 2 (SEE): 50% weight

   A 3 hour duration Semester End Examination will be conducted for a maximum of 100 marks and will

be reduced to 50% weight.

A student is required to score a minimum of 40% marks in Semester end examination and 40% marks overall in each theory course.

3.   For Laboratory/ Practical courses

Total Marks : 50

Component 1(CE) : Laboratory Report: 50% Weight

Component 2(SEE) Semester End Examination: 50% Weight

A 3 hour duration Semester End Examination will be conducted for a maximum of 50 marks.

The course leader will indicate the mode of assessment in consultation and approval of the respective HoD and the faculty Dean, before commencement of the semester.

The template for weightage of CE and SEE in percentages for each course is indicated in Table below.

ILO No.	Intended Learning Outcome	Assessment Type	CE (Weightage: 50 %)				SEE (Weightage: 50 %):
			Conduction of Lab Exercises)	(Viva)	(Lab Record Submission)	(Lab Test)	SEE
		Comp Weightage (%)					50
1	ILO-1						
2	ILO-2						

A student is required to score a minimum of 40% marks in Semester end examination and 40% marks overall in each laboratory course.

4.   For courses with a combination of theory and laboratory

There are two components-Component-1 and Component-2

Component-1 (CE) carries a weight of 50% and Component -2 (SEE) carries a weight of 50%.

Component-1 (CE): 50% weight

The course leader will indicate the mode of assessment in consultation and approval of the respective HoD and the faculty Dean, before commencement of the semester.

The template for weightage of CE and SEE in percentages for each course is indicated in Table below.

ILO No.	Intended Learning Outcome	CE (Weightage: 50 %)				SEE (Weightage: 50 %)
		Assessment Type	Comp-1a	Comp-1b	Comp-1c Lab	SEE
		Comp Weightage (%)	00	00	00	50
1	ILO-1					
2	ILO-2					
3	ILO-3					
4	ILO-4					
5	ILO-5					
6	ILO-6					

CE – can be from any combination of the following:

Assignments, term Tests, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, others,

A 3 hour duration Semester End Examination will be conducted for a maximum of 100 marks and will be reduced to 50 marks.

A student is required to score a minimum of 40% marks in Semester end examination and 40% marks overall in each theory course.

5.   Other flexibilities (exceptions) as per the programme regulations.

24	**Attendance**

A minimum of 80% attendance compulsory to appear for semester end examinations. Any condoning is as per the programme regulations.

25	**Award of Degree**

As per the Academic Regulations of B.Tech. Programme

26	**Student Support for Learning**

1. Course Notes
2. Reference Books in the Library
3. Magazines and Journals
4. Internet Facility
5. Computing Facility
6. Laboratory Facility
7. Workshop Facility
8. Staff Support
9. Lounges for Discussions
10. Any other support that enhances their learning

27	**Quality Control Measures**

1. Review of Course Notes
2. Review of Question Papers and Assignment Questions
3. Student Feedback
4. Moderation of Assessed Work

5. Opportunities for students to see their assessed work
6. Review and Audit by external examiners
7. Staff Student Consultative Committee meetings
8. Student exit feedback

28 Curriculum Map

Course code					Intended Learning Outcomes											
					Knowledge and Understanding				Cognitive(Thinking) Skills(Critical, Analytical, Problem Solving)				Practical skills			
19HST	19BSC/L	19ESC/L	19ASC/L/E/P	19OEE	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
a	b	c	d	e												
101A	101A	101A	201A	41XA	bcde	cde	cde	cde	d							
102A	102A	102A	202A	42XA	bcde	cde	cde	cde		d	d	d				
201A	L103A	103A	203A		bcde	cde	cde	cde					c			
	104A	L105A	204A		bcde	cde	de	de	c		d	d				
	105A	106A	L205A		bcd	cd	cd	cd	d	d	d		d	d	d	
	L106A	107A	L206A		bcd	bcd	bcd	bcd		d				bcd	bcd	bcd
	207A	108A	207A		acd	cd	cd	cd	c	d						
	208A	109A	208A		acd	c	cd	cd	d	b		b	c	c		
		L110A	209A		d	d	d	d	d	c						
		L111A	210A		cd	cd	cd	cd	d	d	d	d				
			L211A		d	d	d	d	d					d		
			L212A		d	d	d	d	d					d		
			L213A		d					d	d		d	d		
			301A				d					d				
			302A			d	d				d	d				
			303A		cd	cd	cd	cd	d	d	d	d				d
			304A		d	d	d	d	d	d	d	d			d	d
			305A		d	d	d	d	d		d	d				
			L306A				d	d				d	d	d	d	
			L307A			d		d	d	d	d	d	d	d	d	d
			308A		d	d	d	d	d		d	d				
			309A			d	d	d		d	d	d				
			310A			d	d	d		d	d	d				
			311A			d	d	d		d	d	d				
			312A		d	d		d		d	d	d				
			L313A		d	d		d		d	d	d	d	d	d	
			L314A		d	d	d	d	d	d	d	d				
			E4XXA*													
			C401A		d	d	d	d	d	d	d	d	d	d	d	d
			PI41A		d	d	d	d	d	d	d	d	d	d	d	d
			PI42A		d	d	d	d	d	d	d	d	d	d	d	d
			PI43A		d	d	d	d	d	d	d	d	d	d	d	d
4	17	20	109	6	Total 160 credits											

*Depends on elective Course chosen

29 | Capability / Transferable Skills Map

Course					Skills									
19HST	19BSC/L	19ESC/L	19ASC/L/E/P	19OEE	GK	SL	WC	OC	P	B	IM	PM	L	AO
a	b	c	d	e										
101A	101A	101A	201A	41XA	abcde	abcde	abcde	a	a	a	abcde	abcde	a	a
102A	102A	102A	202A	42XA	abcde	abcde	abcde	abcde	a	a	abcde	abcde	a	a
201A	L103A	103A	203A		abcde	abcde	abcde	ab	a	a	abcde	abcde		
	104A	L105A	204A		bcde	bcde	bcde	c			bcde	bcde		
	105A	106A	L205A		bcd	bcd	bcd	c			bcd	bcd		
	L106A	107A	L206A		bcd	bcd	bcd	bd			bcd	bcd		
	207A	108A	207A		bcd	bcd	bcd	d			bcd	bcd		
	208A	109A	208A		bcd	bcd	bcd	d			bcd	bcd		
		L110A	209A		bcd	bcd	bcd	c			cd	cd		b
		L111A	210A		cd	cd	cd	c			cd	cd		
			L211A		d	d	d				d	d		
			L212A		d	d	d				d	d		
			L213A		d	d	d	d			d	d		
			301A		d	d	d	d			d	d		
			302A		d	d	d	d			d	d		
			303A		d	d	d	d			d	d		
			304A		d	d	d				d	d		
			305A		d	d	d				d	d		
			L306A		d	d	d				d	d		
			L307A		d	d	d				d	d		
			308A		d	d	d				d	d		
			309A		d	d	d	d			d	d		
			310A		d	d	d	d			d	d		
			311A		d	d	d	d			d	d		
			312A		d	d	d	d			d	d		
			L313A		d	d	d				d	d		
			L314A		d	d	d				d	d		
			4XXA*		d	d	d				d	d		
			C401A		d	d	d				d	d		
			PI41A		d	d	d				d	d		
			PI42A		d	d	d				d	d		
			PI43A		d	d	d				d	d		

*Depends on elective Course chosen

GK: Group Work, SL: Self Learning, WC: Written Communication, OC: Oral Communication, P: Presentation, B: Behavioral, IM: Information Management, PM: Personal Management, L: Leadership, AO: Any Other

30 | Co-curricular Activities

Students are encouraged to take part in co-curricular activities like seminars, conferences, symposia, paper writing, attending industry exhibitions, project competitions and related activities for enhancing their knowledge and networking.

31 | Cultural and Literary Activities

Annual cultural festivals are held to showcase the creative talents in students. They are involved in planning and organizing the activities.

32 | Sports and Athletics

Students are encouraged to take part in sports and athletic events regularly. Annual sports meet will be held to demonstrate sportsmanship and competitive spirit.

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