

MVJ College of Engineering, Whitefield, Bangalore 560067
An Autonomous Institution, Affiliated to VTU, Belagavi
B.E. in Electronics Engineering (VLSI Design and Technology)
Scheme of Teaching and Examination
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
 Effective from the academic year 2023-24

III SEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PS)	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	PCC	MVJ22VL31	Maths for AV Communication	TD: Maths	3	0	0		03	50	50	100	3
2	IPCC	MVJ22VL32	Analog Electronics	TD: ECE	3	0	2		03	50	50	100	4
3	IPCC	MVJ22VL33	Physics of Semiconductor Devices	TD: ECE	3	0	2		03	50	50	100	4
4	PCC	MVJ22VL34	Analysis and Design of Digital Circuits	TD: ECE	3	0	0	Y	03	50	50	100	3
5	PCCL	MVJ22VLL35	Digital Circuit Laboratory	TD: ECE	0	0	2		03	50	50	100	1
6	ESC	MVJ22VL36x	ESC/ETC/PLC	TD: ECE	3	0	0		03	50	50	100	3
7	UHV	MVJ22SCR37	Social Connect and Responsibility	Any Department	0	0	2		01	100	---	100	1
8	AEC	MVJ22A3YYY	Ability Enhancement Course (Level 1)	Respective Vertical	1	0	2		02	50	50	100	2
9	MC	MVJ22NS39	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		MVJ22PE39	Physical Education(PE) (Sports and Athletics)	Physical Education Director									
		MVJ22YO39	Yoga	Yoga Teacher									
Total					16	0	12		21	550	350	900	21

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. K: This letter in the course code indicates common to all the stream of engineering. ESC: Engineering Science Course, ETC: Emerging Technology Course, PLC: Programming Language Course.

Engineering Science Course(ESC/ETC/PLC)			
MVJ22VL361	Principles of Communication	MVJ22VL363	Computer Organization and Architecture
MVJ22VL362	Artificial Intelligence and Machine Learning	MVJ22VL364	Sensor Technology
Ability Enhancement Course–III			
MVJ22A3011	Idea Box- Innovation-Level 1	MVJ22A3071	IOT - Connecting the World-Level 1
MVJ22A3021	Tomorrow's Engineers – Engineering Solution to Societal Problems - Level 1	MVJ22A3081	FSIPD –Ideas to Product- Level 1
MVJ22A3031	Tinkering Lab – Experiment and Conceptualize- Level 1	MVJ22A3091	Software Development - Code your idea- Level 1
MVJ22A3041	UAV – Develop Drones- Level 1	MVJ22A3101	LabVIEW - Graphical Programming - Level 1
MVJ22A3051	Astronomy – Explore the space- Level 1	MVJ22A3111	CNC Programming – Advanced Manufacturing- Level 1
MVJ22A3061	Robotics and Industrial Automation Lab-Design Robots-Level 1	MVJ22A3121	NCC- Level 1

Professional Core Course (IPCC): Refers to Professional Core Course Theory 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(B.E./B.Tech.) 2022-23 may please be referred.

National Service Scheme/ Physical Education/ Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education(PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

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IV SEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PS)	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	PCC	MVJ22VL41	FPGA based Design using Verilog HDL	TD:ECE	3	0	0		03	50	50	100	3
2	IPCC	MVJ22VL42	Network Theory	TD:ECE	3	0	2		03	50	50	100	4
3	PCC	MVJ22VL43	Electromagnetic Field Theory	TD:ECE	3	0	0	Y	03	50	50	100	3
4	PCCL	MVJ22VLL44	Verilog HDL Laboratory	TD:ECE	0	0	2		03	50	50	100	1
5	ESC	MVJ22VL45x	ESC/ETC/PLC	TD:ECE	3	0	0		03	50	50	100	3
6	AEC	MVJ22A4YYY	Ability Enhancement Course (Level 2)	Respective Vertical	1	0	2		02	50	50	100	2
7	BSC	MVJ22BI47	Biology For Engineers	BT, CHE	2	0	0		03	50	50	100	2
8	UHV	MVJ22UHV48	Universal human values course	Any Department	1	0	0		01	50	50	100	1
9	MC	MVJ22NS49	National Service Scheme(NSS)	NSS coordinator	0	0	2		100	---	100	0	
		MVJ22PE49	Physical Education(PE) (Sports and Athletics)	Physical Education Director									
		MVJ22YO49	Yoga	Yoga Teacher									
Total					16	0	8		21	500	400	900	19
<p>PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, MC: Mandatory Course(Non-credit), AEC: Ability Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical S=SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. K: This letter in the course code indicates common to all the stream of engineering.</p>													

MVJ22A4012	Idea Box- Innovation-Level 2	MVJ22A4072	IOT - Connecting the World-Level 2
MVJ22A4022	Tomorrow's Engineers – Engineering Solution to Societal Problems =- Level 2	MVJ22A4082	FSIPD –Ideas to Product- Level 2
MVJ22A4032	Tinkering Lab – Experiment and Conceptualize- Level 2	MVJ22A4092	Software Development - Code your idea- Level 2
MVJ22A4042	UAV – Develop Drones- Level 2	MVJ22A4102	LabVIEW - Graphical Programming - Level 2
MVJ22A4052	Astronomy – Explore the space- Level 2	MVJ22A4112	CNC Programming – Advanced Manufacturing- Level 2
MVJ22A4062	Robotics and Industrial Automation Lab-Design Robots-Level 2	MVJ22A4122	NCC- Level 2
Engineering Science Course(ESC/ETC/PLC)			
MVJ22VL451	Control Systems	MVJ22VL453	Robotics and Automation
MVJ22VL452	Industrial Electronics	MVJ22VL454	Data Structures Using Python
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VSEMESTER

Sl. No	Course and Course Code		Course Title	Board Of Studies (BOS)	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	HSMS	MVJ22VL51	Technical Management	TD:ECE	3	0	0		03	50	50	100	3
2	IPCC	MVJ22VL52	ARM Microcontroller and Embedded Systems	TD:ECE	3	0	2		03	50	50	100	4
3	PCC	MVJ22VL53	Digital VLSI Design	TD:ECE	4	0	0	Y	03	50	50	100	4
4	PCCL	MVJ22VLL54	VLSI Laboratory-1	TD:ECE	0	0	2		03	50	50	100	1
5	PEC	MVJ22VL55x	Professional Elective Course	TD:ECE	3	0	0		03	50	50	100	3
6	PROJ	MVJ22VLP56	Mini Project	TD:ECE	0	0	4		03	100		100	2
7	AEC	MVJ22RMI57	Research Methodology and IPR	TD:ECE	3	0	0		02	50	50	100	3
8	MC	MVJ22ENV58	Environmental Studies	CV	2	0	0		02	50	50	100	2
9	MC	MVJ22NS59	National Service Scheme (NSS)	NSS coordinator	0	0	2			100		100	0
		MVJ22PE59	Physical Education(PE) (Sports and Athletics)	Physical Education Director									
		MVJ22YO59	Yoga	Yoga Teacher									
Total					17	0	10		22	550	350	900	22

Professional Elective Course

MVJ22VL551	VLSI Fabrication Technology	MVJ22VL553	Introduction to Linux Programming
MVJ22VL552	Design for Testability	MVJ22VL554	Signals and System
MVJ22VL555	Innovation and Entrepreneurship		

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Professional Core Course (IPCC): Refers to Professional Core Course Theory 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 (B.E./B.Tech.) 2022-23 may please be referred.

National Service Scheme/ Physical Education/ Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education(PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

Mini-project work: Mini Project is a laboratory-oriented/hands on course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/application etc. 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 the 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 batchmates.

(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 the 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.

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. The minimum number of students' strengths for offering a professional elective is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

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Effective from the academic year 2023-24

VI SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question and Paper Setting Board (PSB)	Teaching Hours/Week				Examination				Credit
					Theory Lecture	Tutorial	Practical Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	IPCC	MVJ22VL61	Scripting Language for VLSI	TD:ECE	3	0	2		03	50	50	100	4
2	PCC	MVJ22VL62	Analog VLSI design	TD:ECE	3	0	0	Y	03	50	50	100	3
3	PEC	MVJ22VL63x	Professional Elective Course	TD:ECE	3	0	0		03	50	50	100	3
4	OEC	MVJ22VL64x	Open Elective Course	TD:ECE	3	0	0		03	50	50	100	3
5	PROJ	MVJ22VLP65	Project Phase I	TD:ECE	0	0	4		03	100	--	100	2
6	PCCL	MVJ22VLL66	VLSI Laboratory 2	TD:ECE	0	0	2		03	50	50	100	1
7	AEC	MVJ22A6YYY	Ability Enhancement Course (Level 3)	Respective Vertical	1	0	2		01	50	50	100	1
8	HMSC	MVJ22IKK68	Indian Knowledge System	TD:ECE	1	0	0		02	50	50	100	1
8	MC	MVJ22NS68	National Service Scheme(NSS)	NSS coordinator	0	0	2		100	---	100	100	0
		MVJ22PE68	Physical Education(PE) (Sports and Athletics)	Physical Education Director									
		MVJ22YO68	Yoga	Yoga Teacher									
Total					13	0	12		19	500	300	800	18

Professional Elective Course

MVJ22VL631	Low power VLSI Design	MVJ22VL633	Microelectro-Mechanical systems
MVJ22VL632	FPGA and ASIC	MVJ22VL634	SoC Design

Open Elective Course

MVJ22VL641	Semiconductor Devices	MVJ22VL643	Fundamentals of Microprocessors and Microcontrollers
MVJ22VL642	Digital Logic Design	MVJ22VL644	Flexible Electronics

Ability Enhancement Course- Level 3

MVJ22A6013	Idea Box- Innovation-Level 3	MVJ22A6073	IOT - Connecting the World-Level 3
MVJ22A6023	Tomorrow's Engineers – Engineering Solution to Societal Problems –Level 3	MVJ22A6083	FSIPD –Ideas to Product- Level 3
MVJ22A6033	Tinkering Lab – Experiment and Conceptualize- Level 3	MVJ22A6093	Software Development - Code your idea- Level 3
MVJ22A6043	UAV – Develop Drones- Level 3	MVJ22A6103	LabVIEW - Graphical Programming - Level 3
MVJ22A6053	Astronomy – Explore the space- Level 3	MVJ22A6113	CNC Programming – Advanced Manufacturing- Level 3
MVJ22A6063	Robotics and Industrial Automation Lab-Design Robots-Level 3	MVJ22A6123	NCC- Level 3

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Professional Core Course (IPCC): Refers to Professional Core Course Theory 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 (B.E./B.Tech.)2022-23

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education(PE) (Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

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. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall Not be applicable to cases where the admission to the program is less than 10.

Open Elective Courses:

Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for 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. The minimum numbers of students' strength for offering Open Elective Course is 10. However, this condition Shall not be applicable to class where the admission to the program is less than 10.

Project Phase-I: Students have to discuss with the mentor/guide and with their help he/she has to complete the literature survey and prepare the report and finally define the problem statement for the project work.



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VIISEMESTER													
Sl.No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours/Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	IPCC	MVJ22VL71	System Verilog for Verification	TD:ECE	3	0	2		03	50	50	100	4
2	IPCC	MVJ22VL72	Mixed Signal VLSI Design	TD:ECE	3	0	2		03	50	50	100	4
3	PCC	MVJ22VL73	VLSI Physical Design	TD:ECE	4	0	0	Y	03	50	50	100	4
4	PEC	MVJ22VL74x	Professional Elective Course	TD:ECE	3	0	0		03	50	50	100	3
5	OEC	MVJ22VL75x	Open Elective Course	TD:ECE	3	0	0		01	50	50	100	3
6	PROJ	MVJ22VLP76	Major Project Phase-II	TD:ECE	0	0	12		03	100	100	200	6
Total					16	0	16		16	350	350	700	24
Professional Elective Course													
MVJ22VL741	Advances in VLSI Design			MVJ22VL743	Nanoelectronics								
MVJ22VL742	Memory Devices and Circuits			MVJ22VL744	Static Timing Analysis								
Open Elective Course													
MVJ22VL751	VLSI Design for Signal Processing			MVJ22VL753	IC Technology								
MVJ22VL752	Basic VLSI Design												
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<p>Note: VII and VIII semesters of IV years of the program</p> <p>(1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examinations to accommodate research internships/industry internships after the VI semester.</p> <p>(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether the VII or VIII semesters is completed during the beginning of the IV year or the later part of IV years of the program.</p>													
<p>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</p>													

curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in these elected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

Open Elective Courses:

Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for 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. The minimum numbers of students' strength for offering Open Elective Course is 10. However, this condition shall not be applicable to class where the admission to the program is less than 10.

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 install 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 the 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.

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VIII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	PEC	MVJ22VL81x	Professional Elective (Online Courses)	TD:ECE	-	-	-	-	-	-	-	-	3
2	OEC	MVJ22VL82x	Open Elective (Online Courses)	TD:ECE	-	-	-	-	-	-	-	-	3
3	INT	MVJ22VLI83	Internship(Industry/Research)(14-20weeks)	TD:ECE	0	0	12	-	03	100	100	200	10
									03	100	100	200	16

Professional Elective Course(Online courses)

MVJ22VL811	NPTEL/SWAYAM	MVJ22VL813	NPTEL/SWAYAM
MVJ22VL812	NPTEL/SWAYAM	MVJ22VL814	NPTEL/SWAYAM

Open Elective Courses (Online Courses)

MVJ22VL821	NPTEL/SWAYAM	MVJ22VL823	NPTEL/SWAYAM
MVJ22VL822	NPTEL/SWAYAM	MVJ22VL824	NPTEL/SWAYAM

L: Lecture, **T:** Tutorial, **P:** Practical, **S=SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:** Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **PROJ:** Project work, **INT:** Industry Internship/ Research Internship/Rural Internship

Note: VII and VIII semesters of IV years of the program Swapping Facility

- Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate **research internships/ industry internships/Rural Internship** after the VI semester.
- 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 years of the program i.e., after VI semester, VII semester classwork and VIII semester **Research Internship /Industrial Internship / Rural Internship** shall be permitted to be operated simultaneously by the University so that students have ample opportunity for an internship. In other words, a good percentage of the class shall attend VII semester classwork and a similar percentage of others shall attend to Research Internship or Industrial Internship or Rural Internship.

Research/Industrial/Rural Internship shall be carried out at an Industry, NGO, MSME, Innovation center, Incubation center, Start-up, center of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations/institutes.

The mandatory Research internship /Industry internship / Rural Internship is for 14 to 20 weeks. The internship shall be considered as a head of passing and shall be considered for the award of a degree. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavor 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: Rural development internship is an initiative of Unnat Bharat Abhiyan Cell, RGIT in association with AICTE to involve students of all departments studying in different academic years for exploring various opportunities in techno-social fields, to connect and work with Rural India for their upliftment.

The faculty coordinator or mentor has to monitor the student's 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 the internship.

With the consent of the internal guide and Principal of the Institution, students shall be allowed to carry out the internship at their hometown (**within or outside the state or abroad**), provided favorable facilities are available for the internship and the student remains regularly in contact with the internal guide. **University shall not bear any cost involved in carrying out the internship by students.** However, students can receive any financial assistance extended by the organization.

Professional Elective /Open Elective Course: These are ONLINE courses suggested by the respective Board of Studies. Details of these courses shall be made available for students on the VTU web portal.