

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 (PSB)	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	22EA301	Maths for AV Communication	TD- Mathematics	3	0	0		03	50	50	100	3
2	IPCC	22EA302	Analysis and Design of Digital Circuits	TD:EC	3	0	2		03	50	50	100	4
3	IPCC	22EA303	Analog Electronic Circuits	TD:EC	3	0	2		03	50	50	100	4
4	PCC	22EA304	Network Analysis	TD:EC	2	0	2		03	50	50	100	3
5	PCCL	22EAL305	Analog and Digital Electronics Laboratory	TD:EC	0	0	2		03	50	50	100	1
6	ESC	22EA306x	ESC/ETC/PLC	TD:EC	3	0	0		03	50	50	100	3
7	UHV	22ACK307	<b>Social Connect and Responsibility</b>	Any Department	0	0	2		01	100	---	100	1
8	AEC/ SEC	22AC358x	Ability Enhancement Course/Skill Enhancement Course – III (Level 1)		1	0	2		01	50	50	100	2
								02					
9	MC	22BNSK359	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		22BPEK359	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22BYOK359	Yoga	Yoga Teacher									
<b>Total</b>									<b>550</b>	<b>350</b>	<b>900</b>	<b>21</b>	

**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)**

22EA306A	Digital System Design using Verilog	22EA306C	Computer Organization and Architecture
22EA306B	Sensors and Instrumentation	22EA306D	Applied Numerical methods

**Ability Enhancement Course – III**

22AC358A	Robotics and Automation Lab-Level 1	22AC358C	IOT Lab-Level 1
22AC358B	NI Lab View-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.) 2022-22 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	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical Drawing	Self -Study	Duration inhours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	PCC	22EA401	Engineering Electromagnetics	TD:EC	2	0	0		03	50	50	100	2
2	IPCC	22EA 402	Principles of Communication Systems	TD:EC	3	0	2		03	50	50	100	4
3	IPCC	22EA 403	Modern Control systems	TD:EC	4	0	0		03	50	50	100	4
4	PCCL	22EAL404	Communication laboratory	TD:EC	0	0	2		03	50	50	100	1
5	ESC	22EA 405x	ESC/ETC/PLC	TD:EC	3	0	0		03	50	50	100	3
6	AEC / SEC	22AC456x	Ability Enhancement Course/SkillEnhancement Course- IV(Level 2)	TD : Concerned department					02	50	50	100	2
					1	0	2						
4	BSC	22BOK407	Biology For Engineers	TD / PSB: BT, CHE,	2	0	0		03	50	50	100	2
7	UHV	22UHK408	Universal human values course	Any Department	1	0	0		01	50	50	100	1
9	MC	22NSK459	National Service Scheme (NSS)	NSS coordinator	0	0	2		100	---	100	0	
		22PEK459	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22YOK459	Yoga	Yoga Teacher									
<b>Total</b>									<b>500</b>	<b>400</b>	<b>900</b>	<b>19</b>	

**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.

<b>Ability Enhancement Course / Skill Enhancement Course - IV</b>			
22EA 456A	Robotics and Automation Lab-Level II	22EA 456C	IOT Lab-Level II
22EA 456B	NI Lab View-Level II		
<b>Engineering Science Course (ESC/ETC/PLC)</b>			
22EA 405A	8051 Microcontroller	22EA 405C	Operating Systems
22EA 405B	Data Structures using C++	22EA 405D	Engineering Statistics and Linear Algebra
<p><b>Professional Core Course (IPCC):</b> Refers to Professional Core Course Theory 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 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.) 2022-22</p> <p><b>National Service Scheme /Physical Education/Yoga:</b> 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 courses is mandatory for the award of degree.</p>			

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**V 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	HSMS	22EA 501	Technical Management & Entrepreneurship	TD:EC	3	0	0		03	50	50	100	3
2	IPCC	22EA 502	Microwave Engineering	TD:EC	3	0	2		03	50	50	100	4
3	PCC	22EA 503	Signal Processing	TD:EC	4	0	0		03	50	50	100	4
4	PCCL	22EA L504	Signal Processing Laboratory	TD:EC	0	0	2		03	50	50	100	1
5	PEC	22EA 515x	Professional Elective Course	TD:EC	3	0	0		03	50	50	100	3
6	PROJ	22EA 586	Mini Project	TD:EC	0	0	4		03	100		100	2
7	AEC	22RMK557	Research Methodology and IPR	TD:EC	2	2	0		02	50	50	100	3
8	MC	22ESK508	Environmental Studies	TD:EC	2	0	0		02	50	50	100	2
9	MC	22NSK559	National Service Scheme (NSS)	NSS coordinator	0	0	2			100		100	0
		22EK559	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22YOK559	Yoga	Yoga Teacher									
<b>Total</b>									<b>500</b>	<b>300</b>	<b>800</b>	<b>22</b>	

**Professional Elective Course**

22EA 515A	Machine Learning	22EA 515C	Artificial Neural Networks
22EA 515B	Cryptography	22EA 515D	Cloud Computing and IOT Analytics

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Course
<p><b>Professional Core Course (IPCC):</b> 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.) 2022-22</p> <p><b>National Service Scheme /Physical Education/Yoga:</b> 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.</p>
<p><b>Mini-project work:</b> 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/applications 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.</p> <p><b>CIE procedure for Mini-project:</b></p> <p><b>(i) Single discipline:</b> 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 batches mates.</p> <p><b>(ii) Interdisciplinary:</b> 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.</p> <p><b>No SEE component for Mini-Project.</b></p>
<p><b>Professional Elective Courses (PEC):</b> 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.</p>

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
**B.E. in Electronics & Communication (Advanced Communication Technology)**  
**Scheme of Teaching and Examinations 2022**  
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)  
 (Effective from the academic year 2023-24)

**VI SEMESTER**

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question 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	22EA 601	Antenna and Wave Propagation	TD:EC	3	0	2		03	50	50	100	4
2	PCC	22EA 602	Optical Communication	TD:EC	3	0	0		03	50	50	100	3
3	PEC	22EA 613x	Professional Elective Course	TD:EC	3	0	0		03	50	50	100	3
4	OEC	22EA 654x	Open Elective Course	TD:EC	3	0	0		03	50	50	100	3
5	PROJ	22EA 685	Project Phase I	TD:EC	0	0	4		03	100	--	100	2
6	PCCL	22EA L606	Antenna and Wave Propagation Lab	TD:EC	0	0	2		03	50	50	100	1
7	AEC/SDC	22EE657x	Ability Enhancement Course/Skill Development Course V	TD:EC					01	50	50	100	2
1					0	2							
8	MC	22NSK658	National Service Scheme (NSS)	NSS coordinator	0	0	2		100	---	100	0	
		22PEK658	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22YOK658	Yoga	Yoga Teacher									
<b>Total</b>									<b>500</b>	<b>300</b>	<b>800</b>	<b>18</b>	
<b>Professional Elective Course</b>													
22EA 613A		Satellite Communication		22EA 613C		Applications with MATLAB programming and Simulink							
22EA 613B		Networks and Cyber Security		22EA 613D		Digital Image Processing							
<b>Open Elective Course</b>													

<b>Ability Enhancement Course / Skill Enhancement Course-V</b>			
22AC 657A	Robotics and Automation Lab-Level III	22AC 657C	IOT Lab-Level III
22AC 657B	NI Lab View-Level III		
<p><b>PCC:</b> Professional Core Course, <b>PCCL:</b> Professional Core Course laboratory, <b>UHV:</b> Universal Human Value Course, <b>MC:</b> Mandatory Course (Non-credit), <b>AEC:</b> Ability Enhancement Course, <b>SEC:</b> Skill Enhancement Course, <b>L:</b> Lecture, <b>T:</b> Tutorial, <b>P:</b> Practical <b>S= SDA:</b> Skill Development Activity, <b>CIE:</b> Continuous Internal Evaluation, <b>SEE:</b> Semester End Evaluation. <b>K :</b> The letter in the course code indicates common to al the stream of engineering. <b>PROJ:</b> Project /Mini Project. <b>PEC:</b> Professional Elective Course. <b>PROJ:</b> Project Phase -I, <b>OEC:</b> Open Elective Course</p>			
<p><b>Professional Core Course (IPCC):</b> 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.) 2022-22</p>			
<p><b>National Service Scheme /Physical Education/Yoga:</b> 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.</p>			
<p><b>Professional Elective Courses (PEC):</b> 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.</p>			
<p><b>Open Elective Courses:</b> 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.</p>			
<p><b>Project Phase-I :</b> Students have to discuss with the mentor /guide and with their helpe/she has to complete the literature survey and prepare the report and finally define the problem statement for the project work.</p>			



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**VII 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	IPCC	22EA 701	Computer Communication Networks	TD:EC	3	0	2		03	50	50	100	4
2	IPCC	22EA 702	Image Processing	TD:EC	3	0	2		03	50	50	100	4
3	PCC	22EA 703	Wireless Cellular and LTE 4G Broadband	TD:EC	4	0	0		03	50	50	100	4
4	PEC	22EA 714x	<b>Professional Elective Course</b>	TD:EC	3	0	0		03	50	50	100	3
5	OEC	22EA 755x	<b>Open Elective Course</b>	TD:EC	3	0	0		01	50	50	100	3
6	PROJ	22EA 786	<b>Major Project Phase-II</b>	TD:EC	0	0	12		03	100	100	200	6
										<b>400</b>	<b>300</b>	<b>700</b>	<b>24</b>

**Professional Elective Course**

22EA 714A	Wireless Sensor Networks	22EA 714C	Robotics and Automation
22EA 714B	5G Fundamentals and Architecture	22EA 714D	Soft Computing Techniques

**Open Elective Course**

22EA 755A		22EA 755C	
22EA 755B		22EA 755D	

**PCC:** Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **OEC:** Open Elective Course **PR:** Project Work, **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

**Note: VII and VIII semesters of IV years of the program**

- (1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examinations to accommodate research internships/ industry internships 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 the VII or VIII semesters is completed during the beginning of the IV year or the later part of IV years of the program.

**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 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	22EA 801x	<b>Professional Elective (Online Courses)</b>	TD:EC	3	0	0		03	50	50	100	3
2	OEC	22EA 802x	<b>Open Elective (Online Courses)</b>	TD:EC	0	2	0		01	50	50	100	3
3	INT	22EA 803	<b>Internship (Industry/Research) (14 - 20 weeks)</b>	TD:EC	0	0	12		03	100	100	200	10
										<b>200</b>	<b>200</b>	<b>400</b>	<b>16</b>
<b>Professional Elective Course (Online courses)</b>													
22EA 801A				22EA 801B									
22EA 801C				22EA 801D									
<b>Open Elective Courses (Online Courses)</b>													
22EA 802A				22EA 802B									
22EA 802C				22EA 802D									

**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.

