MVJ College of Engineering, Bengaluru
(An Autonomous Institute)
Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi, Recognised by UGC with 2(f) & 12 (B),
Accredited by NAAC

BE (Electronics and communication (Advanced Communication Technology))

Scheme of Teaching and Examination 2022-23

Outcome Based Education (OBE) and Choice Based Credit System (CBCS) Effective from the academic year 2022-23

III SEMESTER

Sl. No.	Course		Course Title	Teaching Department	Teaching Hours/Week				Examination				Credits
					Theory/ lecture	Tutorials	Practical/ Drawing	Self-Study Compone	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	BSC	MVJ22EA31	Mathematics for AV Communication	MA	3	0	0	-	03	50	50	100	3
2	IPCC	MVJ22EA32	Analysis and Design of Digital Circuits	EA	3	0	2	-	03	50	50	100	4
3	IPCC	MVJ22EA33	Analog Electronic Circuits	EA	3	0	2	-	03	50	50	100	4
4	PCC	MVJ22EA34	Network Analysis	EA	3	0	0	-	03	50	50	100	3
5	PCCL	MVJ22EAL35	Analog and Digital Electronics Laboratory	EA	0	0	2	-	03	50	50	100	1
6	ESC	MVJ22EA36X	ESC/ETC/PLC	EA	3	0	0	-	03	50	50	100	3
7	SCR	MVJ22SCR37	Social Connect and Responsibility	EA	0	0	2	-	-	100	-	100	1
8	AEC/SEC	MVJ22A3YY1	AEC Vertical Level 1	Respective Department	1	0	2	-	02	50	50	100	2
9	MC	MVJ22NS39	National Service Scheme (NSS).	NSS	0	0	2	-	-	100	-	100	0
		MVJ22PE39	Physical Education (PE) (Sports and Athletics).	PE									
		MVJ22YO39	Yoga.	Yoga									
10	BSC	MVJ22MATDIP-I	Additional Mathematics-I	MA	2	0	0	-	-	100	-	100	0
												Total	21

Note: **BSC**: Basic Science Course, **IPCC**: Integrated Professional Core Course, **PCC**: Professional Core Course, **PCCL**: Professional Core Course laboratory, **ESC**: Engineering Science Course, **ETC**: Emerging Technology Course, **PLC**: Programming Language Course, **SCR**: Social Connect Responsibility, **AEC**: Ability Enhancement Course, **SEC**: Skill Enhancement Course, **MC**: Mandatory Course (Non-credit), **L**: Lecture, **T**: Tutorial, **P**: Practical, **S**: Self Study, **SDA**: Skill Development Activity, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Evaluation.

Engineering Science Course (ESC/ETC/PLC)			
MVJ22EA361	Digital System Design using Verilog	MVJ22EA363	Computer Organization and Architecture
MVJ22EA362	Operating System	MVJ22EA364	Applied Numerical methods
Ability Enhancement Course – III – MVJ22AXYYL (X is Semester, YY is vertical Number, L is level of the vertical)			
MVJ22A3011	Idea Box - Innovation	MVJ22A3071	IoT – Connecting the world
MVJ22A3021	Tomorrow's Engineers – Engineering Solution to Societal Problems	MVJ22A3081	FSIPD –Ideas to Product
MVJ22A3031	Tinkering Lab – Experiment and Conceptualize	MVJ22A3091	Software Development - Code your ideas
MVJ22A3041	UAV – Develop Drones	MVJ22A3101	LabVIEW – Graphical Programming
MVJ22A3051	Astronomy – Explore the space	MVJ22A3111	CNC Programming – Advanced Manufacturing
MVJ22A3061	Robotics and Industrial Automation Lab – Design Robots	MVJ22A3121	NCC

Professional Core Course (IPCC): 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 both CIE and SEE.

National Service Scheme/Physical Education/Yoga: All students have to register for any one of the courses with the respective department during the course registration. Successful completion of the registered course and minimum of 40% of CIE is mandatory for the award of the Degree. 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.

Additional Mathematics-I should be compulsorily taken by lateral entry students.

IV SEMESTER

Sl. No.	Course		Course Title	Teaching Department	Teaching Hours/Week				Examination				Credits
					Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	PCC	MVJ22EA41	Engineering Electromagnetics	EA	3	0	0	-	03	50	50	100	3
2	PCC	MVJ22EA42	Modern Control systems	EA	3	0	0	-	03	50	50	100	3
3	IPCC	MVJ22EA43	Principles of Communication Systems	EA	3	0	2	-	03	50	50	100	4
4	PCCL	MVJ22EAL44	Communication laboratory	EA	0	0	2	-	03	50	50	100	1
5	ESC	MVJ22EA45X	ESC/ETC/PLC	EA	3	0	0	-	03	50	50	100	3
6	AEC/SEC	MVJ22A4YY2	AEC Vertical Level 2	Respective Department	1	0	2	-	02	50	50	100	2
7	BSC	MVJ22BI47	Biology For Engineers	EA	2	0	0	-	02	50	50	100	2
8	UHV	MVJ22UHV48	Universal human values course	EA	1	0	0	-	02	50	50	100	1
9	MC	MVJ22NS49	National Service Scheme (NSS).	NSS	0	0	2	-	-	100	-	100	0
		MVJ22PE49	Physical Education (PE) (Sports and Athletics).	PE									
		MVJ22YO49	Yoga.	Yoga									
10	BSC	MVJ22MATDIP-II	Additional Mathematics-II	MA	2	0	0	-	-	100	-	100	0
												Total	19

Note: **PCC**: Professional Core Course, **IPCC**: Integrated Professional Core Course, **PCCL**: Professional Core Course laboratory, **ESC**: Engineering Science Course, **ETC**: Emerging Technology Course, **PLC**: Programming Language Course, **AEC**: Ability Enhancement Course, **SEC**: Skill Enhancement Course, **BSC**: Basic Science Course, **UHV**: Universal Human Value Course, **MC**: Mandatory Course (Non-credit), **L**: Lecture, **T**: Tutorial, **P**: Practical, **S**: Self Study, **SDA**: Skill Development Activity, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Evaluation.

Engineering Science Course (ESC/ETC/PLC)			
MVJ22EA451	Digital Communication	MVJ22EA453	ARM Microcontroller
MVJ22EA452	Data Structures using C++	MVJ22EA454	Engineering Statistics and Linear Algebra
Ability Enhancement Course / Skill Enhancement Course – IV - MVJ22AXYYL (X is Semester, YY is vertical Number, L is level of the vertical)			
MVJ22A4012	Idea Box - Innovation	MVJ22A4072	IoT – Connecting the world
MVJ22A4022	Tomorrow's Engineers – Engineering Solution to Societal Problems	MVJ22A4082	FSIPD –Ideas to Product
MVJ22A4032	Tinkering Lab – Experiment and Conceptualize	MVJ22A4092	Software Development - Code your ideas
MVJ22A4042	UAV – Develop Drones	MVJ22A4102	LabVIEW – Graphical Programming
MVJ22A4052	Astronomy – Explore the space	MVJ22A4112	CNC Programming – Advanced Manufacturing
MVJ22A4062	Robotics and Industrial Automation Lab – Design Robots	MVJ22A4122	NCC

Professional Core Course (IPCC): 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 both CIE and SEE.

National Service Scheme/Physical Education/Yoga: All students have to register for any one of the courses, any course other than the registered course in the previous semesters with the respective department during the course registration. Successful completion of the registered course and minimum of 40% of CIE is mandatory for the award of the Degree. 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.

Additional Mathematics-II should be compulsorily taken by lateral entry students.

V SEMESTER

Sl. No.	Course		Course Title	Teaching Department	Teaching Hours/Week				Examination				Credits
					Theory lecture	Tutorials	Practical/ Drawing	Self-Study Compone	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	HSMC	MVJ22EA51	Technical Management	EA	3	0	0	-	03	50	50	100	3
2	IPCC	MVJ22EA52	RF and Microwave Engineering	EA	3	0	2	-	03	50	50	100	4
3	PCC	MVJ22EA53	Signal Processing	EA	4	0	0	-	03	50	50	100	4
4	PCCL	MVJ22EAL54	Signal Processing Laboratory	EA	0	0	2	-	03	50	50	100	1
5	PEC	MVJ22EA55X	Professional Elective-I	EA	3	0	0	-	03	50	50	100	3
6	PROJ	MVJ22EAP56	Mini Project	EA	0	0	4	-	-	100	-	100	2
7	AEC	MVJ22RMI57	Research Methodology and IPR	EA	3	0	0	--	03	50	50	100	3
8	MC	MVJ22ENV58	Environmental Studies	EA	2	0	0		02	50	50	100	2
9	MC	MVJ22NS59	National Service Scheme (NSS).	NSS	0	0	2	-	-	100	-	100	0
		MVJ22PE59	Physical Education (PE) (Sports and Athletics).	PE									
		MVJ22YO59	Yoga.	Yoga									
												Total	22

Note: **HSMC:** Humanities, Social Science and Management Course, **IPCC:** Integrated Professional Core Course, **PCC:** Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **PROJ:** Project /Mini Project, **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **M C:** Mandatory Course (Non-credit), **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** Self Study, **SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Course Code	Professional Elective-I
MVJ22EA551	Sensor and Virtual Instrumentation
MVJ22EA552	Cryptography
MVJ22EA553	Machine Learning
MVJ22EA554	Wireless Cellular Communication
MVJ22IE555	Innovation & Entrepreneurship

Professional Core Course (IPCC): 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 both CIE and SEE.

National Service Scheme/Physical Education/Yoga: All students have to register for any one of the courses, any course other than the registered course in the previous semesters with the respective department during the course registration. Successful completion of the registered course and minimum of 40% of CIE is mandatory for the award of the Degree. 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/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 of students 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.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the institute level with the participation of all guides of the respective project.

The Continuous Internal Evaluation (CIE) marks for the Mini Project shall be awarded based on four components: demonstration of the project, evaluation of the project report, project presentation skills, and Viva Voce as per the rubrics of the Institute. The marks awarded for the project report will be common to all members of the project batch.

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 40% of class strength.

VI SEMESTER

Sl. No.	Course		Course Title	Teaching Department	Teaching Hours/Week				Examination				Credits
					Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	IPCC	MVJ22EA61	Software Defined Radio	EA	3	0	2	-	03	50	50	100	4
2	PCC	MVJ22EA62	Computer Communication Networks	EA	3	0	0	-	03	50	50	100	3
3	PEC	MVJ22EA63X	Professional Elective-II	EA	3	0	0	-	03	50	50	100	3
4	OEC	MVJ22EA64X	Open Elective-I	EA	3	0	0	-	03	50	50	100	3
5	PROJ	MVJ22EAP65	Project Phase-I	EA	0	0	4	-	-	100	-	100	2
6	PCCL	MVJ22EAL66	Computer Communication Networks Lab	EA	0	0	2	-	03	50	50	100	1
7	AEC/SDC	MVJ22A6YY3	AEC Vertical Level 3	Respective Department	1	0	2	-	02	50	50	100	1
8	HMSC	MVJ22IKK68	Indian Knowledge System	EA	1	0	0	-	02	50	50	100	1
9	MC	MVJ22NS69	National Service Scheme (NSS).	NSS	0	0	2	-	-	100	-	100	0
		MVJ22PE69	Physical Education (PE) (Sports and Athletics).	PE									
		MVJ22YO69	Yoga.	Yoga									
												Total	18

Note: IPCC: Integrated Professional Core Course, **PCC**: Professional Core Course, **PEC**: Professional Elective Course, **OEC**: Open Elective Course, **PROJ**: Project /Mini Project, **PCCL**: Professional Core Course laboratory, **AEC**: Ability Enhancement Course, **MC**: Mandatory Course (Non-credit), **L**: Lecture, **T**: Tutorial, **P**: Practical **S**: Self Study, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Evaluation.

Course Code	Professional Elective-II	Course Code	Open Elective-I
MVJ22EA631	Satellite Communication	MVJ22EA641	Principles of Communication
MVJ22EA632	Antenna and Wave Propagation	MVJ22EA642	Wireless Cellular Communication
MVJ22EA633	RADAR system Engineering	MVJ22EA643	Introduction to Satellite Communication
MVJ22EA634	MEMS and NANO Technology	MVJ22EA644	Wireless Sensor Networks

Ability Enhancement Course / Skill Enhancement Course-V - MVJ22AXYYL (X is Semester, YY is vertical Number, L is level of the vertical)			
MVJ22A6013	Idea Box - Innovation	MVJ22A6073	IoT – Connecting the world
MVJ22A6023	Tomorrow's Engineers – Engineering Solution to Societal Problems	MVJ22A6083	FSIPD –Ideas to Product
MVJ22A6033	Tinkering Lab – Experiment and Conceptualize	MVJ22A6093	Software Development - Code your ideas
MVJ22A6043	UAV – Develop Drones	MVJ22A6103	LabVIEW – Graphical Programming
MVJ22A6053	Astronomy – Explore the space	MVJ22A6113	CNC Programming – Advanced Manufacturing
MVJ22A6063	Robotics and Industrial Automation Lab – Design Robots	MVJ22A6123	NCC

Professional Core Course (IPCC): 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 both CIE and SEE. **National Service Scheme/Physical Education/Yoga:** All students have to register for any one of the courses, any course other than the registered course in the previous semesters with the respective department during the course registration. Successful completion of the registered course and minimum of 40% of CIE is mandatory for the award of the Degree. 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 a professional elective is 40% of class strength.
Open Elective Courses: Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent and allied branches. However, they can opt for an elective offered by other stream, provided that the selected open elective course does not include more than 30% of the course already completed in their curriculum. The minimum numbers of students' strength for offering an open elective course are 50.
Project Phase-I: Students are required to consult with their mentor or guide to conduct a comprehensive literature survey, prepare a detailed report, and ultimately define the problem statement for their project work.

VII SEMESTER

Sl. No.	Course		Course Title	Teaching Department	Teaching Hours/Week				Examination				Credits
					Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	IPCC	MVJ22EA71	5G and beyond	EA	3	0	2	-	03	50	50	100	4
	IPCC	MVJ22EA72	Optical Communication	EA	3	0	2	-	03	50	50	100	4
2	PCC	MVJ22EA73	Wireless Sensor Networks	EA	4	0	0	-	03	50	50	100	4
4	PEC	MVJ22EA74X	Professional Elective-III	EA	3	0	0	-	03	50	50	100	3
5	OEC	MVJ22EA75X	Open Elective-II	EA	3	0	0	-	03	50	50	100	3
6	PROJ	MVJ22EAP76	Major Project Phase II	EA	-	-	12	-	03	100	100	200	6
												Total	24

Note: IPCC: Integrated Professional Core Course, **PCC**: Professional Core Course, **PEC**: Professional Elective Course, **OEC**: Open Elective Course, **PROJ**: Project /Mini Project, **L**: Lecture, **T**: Tutorial, **P**: Practical **S**: Self Study, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Evaluation.

Course Code	Professional Elective-III	Course Code	Open Elective-II
MVJ22EA741	Microcontroller and its applications	MVJ22EA751	Mobile Communication
MVJ22EA742	Artificial Intelligence	MVJ22EA752	RADAR system Engineering
MVJ22EA743	Virtual & Augmented Reality	MVJ22EA753	MIMO and OFDM
MVJ22EA744	Multimedia Communication	MVJ22EA754	Information Theory and Coding

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 40% of class strength.

Open Elective Courses:

Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent and allied branches. However, they can opt for an elective offered by other stream, provided that the selected open elective course does not include more than 30% of the course already completed in their curriculum. The minimum numbers of students' strength for offering an open elective course are 50.

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. **(iii) Interdisciplinary:** Continuous Internal Evaluation shall be group-wise at the institute level with the participation of all guides of the respective project. The CIE marks awarded for the project work shall be based on the evaluation of the demonstration of project work, Report, project presentation skill, and Viva Voce as per the rubrics provided by the Institute. 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 Institute. The SEE marks awarded for the project work shall be based on the evaluation of demonstration of project work, Report, project presentation skill, and Viva Voce as per the rubrics of the Institute.

VIII SEMESTER

Sl. No.	Course		Course Title	Teaching Department	Teaching Hours/Week				Examination				Credits
					Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	PEC	MVJ22EA81X	Professional Elective-IV (Online Courses: NPTEL/SWAYAM/ Any course approved by BoS)	Online Platform	-	-	-	-	-	-	-	-	3
2	OEC	MVJ22EA82X	Open Elective-III (Online Courses: NPTEL/SWAYAM/ Any course approved by BoS)	Online Platform	-	-	-	-	-	-	-	-	3
3	INT	MVJ22EAI83	Internship (Industry/Research) (14-20 weeks)	---	-	-	-	-	03	100	100	200	10
												Total	16
Note: **PEC**: Professional Elective Course, **OEC**: Open Elective Course, **INT**: Internship, **CIE**: Continuous Internal Evaluation, **SEE**: Semester End Evaluation,													

Course Code	Professional Elective-IV	Course Code	Open Elective-III
MVJ22EA811	NPTEL/SWAYAM/Any course approved by BoS	MVJ22EA821	NPTEL/SWAYAM/Any course approved by BoS
MVJ22EA812	NPTEL/SWAYAM/Any course approved by BoS	MVJ22EA822	NPTEL/SWAYAM/Any course approved by BoS
MVJ22EA813	NPTEL/SWAYAM/Any course approved by BoS	MVJ22EA823	NPTEL/SWAYAM/Any course approved by BoS
MVJ22EA814	NPTEL/SWAYAM/Any course approved by BoS	MVJ22EA824	NPTEL/SWAYAM/Any course approved by BoS

Elucidation:

Institute shall swap VII semester class work and VIII semester **Research Internship/Industrial Internship/Rural Internship** so that students have ample opportunity for an internship. In other words, the class shall attend VII semester class work and 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), Research Centre established in the parent institute and /or at reputed research organizations/institutes.

The Research internship /Industry internship / Rural Internship are 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 as fail and shall have to complete it during the subsequent SEE 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. Institute 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**), if favorable facilities are available for the internship and the student remains regularly in contact with the internal guide. **Institute 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 by the respective board of studies well before starting of semester. For the ONLINE courses, completion of 4-week course is equivalent to one credit.