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 (Mechanical Engineering)

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 Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
	Type	Code			L	T	P	S					
1	BSC	MVJ22ME31	Mathematics for Mechanical Engineers	MA	2	2	0	-	03	50	50	100	3
2	PCC	MVJ22ME32	Engineering Thermodynamics	ME	3	0	0	-	03	50	50	100	3
3	IPCC	MVJ22ME33	Material Science and Engineering	ME	3	0	2	2	03	50	50	100	4
4	PCC	MVJ22ME34	Mechanics of Materials	ME	3	0	0	-	03	50	50	100	3
5	PCCL	MVJ22MEL35	Computer Aided Machine Drawing	ME	0	0	2	-	03	50	50	100	1
6	ESC	MVJ22ME36x	ESC/ETC/PLC	ME	3	0	0	-	03	50	50	100	3
7	SCR	MVJ22SCR37	Social Connect and Responsibility	ME	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	20

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)			
MVJ22ME361	Electric and Hybrid Vehicle Technology	MVJ22ME362	Internet of Things (IoT) for Smart Factories
MVJ22ME363	Smart Materials & Systems	MVJ22ME364	Instrumentation and Controls
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	MVJ22ME41	Manufacturing Process	ME	3	0	0	-	03	50	50	100	3
2	IPCC	MVJ22ME42	Machining Science & Operations	ME	3	0	2	-	03	50	50	100	4
3	IPCC	MVJ22ME43	Fluid Mechanics	ME	3	0	2	2	03	50	50	100	4
4	PCCL	MVJ22MEL44	Mechanical Measurements and Metrology lab	ME	0	0	2	-	03	50	50	100	1
5	ESC	MVJ22ME45X	ESC/ETC/PLC	ME	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	CH	2	0	0	-	02	50	50	100	2
8	UHV	MVJ22UHV48	Universal human values course	ME	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	20

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)			
MVJ22ME451	Python for Mechanical Engineers	MVJ22ME453	Micro Electro Mechanical Systems
MVJ22ME452	Precision Engineering and Nano Fabrication	MVJ22ME454	Robotics and Automation
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	MVJ22ME51	Industrial Management	ME	3	0	0	-	03	50	50	100	3
2	IPCC	MVJ22ME52	Turbo Machines	ME	3	0	2	2	03	50	50	100	4
3	PCC	MVJ22ME53	Theory of Machines	ME	3	2	0	-	03	50	50	100	4
4	PCCL	MVJ22MEL54	CNC Programming and 3-D Printing lab	ME	0	0	2	-	03	50	50	100	1
5	PEC	MVJ22ME55x	Professional Elective-I	ME	3	0	0	-	03	50	50	100	3
6	PROJ	MVJ22MEP56	Mini Project	ME	0	0	4	-	-	100	-	100	2
7	AEC	MVJ22RMI57	Research Methodology and IPR	ME	3	0	0	--	03	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	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
MVJ22ME551	Mechatronics and Microprocessors
MVJ22ME552	Automation in manufacturing
MVJ22ME553	Supply chain management & Introduction to SAP
MVJ22ME554	Process Equipment Design
MVJ22IE555	Innovation and 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	MVJ22ME61	Heat Transfer	ME	3	0	2	2	03	50	50	100	4
2	PCC	MVJ22ME62	Machine Design	ME	2	2	0	-	03	50	50	100	3
3	PEC	MVJ22ME63x	Professional Elective-II	ME	3	0	0	-	03	50	50	100	3
4	OEC	MVJ22ME64x	Open Elective-I	ME	3	0	0	-	03	50	50	100	3
5	PROJ	MVJ22MEP65	Project Phase-I	ME	0	0	4	-	-	100	-	100	2
6	PCCL	MVJ22MEL66	Design Laboratory	ME	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	ME	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
MVJ22ME631	Total Quality Management	MVJ22ME641	Operations and Project Management
MVJ22ME632	Refrigeration and Air Conditioning	MVJ22ME642	Sustainable Energy Systems
MVJ22ME633	Hydraulics and Pneumatics	MVJ22ME643	Additive Manufacturing
MVJ22ME634	Design for Manufacturing and Assembly	MVJ22ME644	Modern Mobility

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	MVJ22ME71	Finite Element Methods	ME	3	0	2	-	03	50	50	100	4
2	IPCC	MVJ22ME72	Mechanical Vibrations	ME	3	0	2	2	03	50	50	100	4
3	PCC	MVJ22ME73	Operations Research	ME	4	0	0	-	03	50	50	100	4
4	PEC	MVJ22ME74x	Professional Elective-III	ME	3	0	0	-	03	50	50	100	3
5	OEC	MVJ22ME75x	Open Elective-II	ME	3	0	0	-	03	50	50	100	3
6	PROJ	MVJ22MEP76	Major Project Phase II	ME	-	-	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
MVJ22ME741	Additive manufacturing	MVJ22ME751	Digital Manufacturing
MVJ22ME742	AI & ML for Mechanical Engineers	MVJ22ME752	Product Design and Development
MVJ22ME743	Tribology and Surface Engineering	MVJ22ME753	Operations Research
MVJ22ME744	Cryogenics	MVJ22ME754	Statistical Design and DoE

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	MVJ22ME81x	Professional Elective-IV (Online Courses: NPTEL/SWAYAM/ Any course approved by BoS)	Online Platform	-	-	-	-	-	-	-	-	3
2	OEC	MVJ22ME82x	Open Elective-III (Online Courses: NPTEL/SWAYAM/ Any course approved by BoS)	Online Platform	-	-	-	-	-	-	-	-	3
3	INT	MVJ22MEI83	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
MVJ22ME811	NPTEL/SWAYAM/Any course approved by BoS	MVJ22ME821	NPTEL/SWAYAM/Any course approved by BoS
MVJ22ME812	NPTEL/SWAYAM/Any course approved by BoS	MVJ22ME822	NPTEL/SWAYAM/Any course approved by BoS
MVJ22ME813	NPTEL/SWAYAM/Any course approved by BoS	MVJ22ME823	NPTEL/SWAYAM/Any course approved by BoS
MVJ22ME814	NPTEL/SWAYAM/Any course approved by BoS	MVJ22ME824	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.