PKM EDUCATIONAL TRUST®
R R Institute of Technology
RAJA REDDY LAYOUT, NEAR CHIKKABANAVARA RAILWAY STATION, CHIKKABANAVARA, BENGALURU - 560090
An Autonomous Institution under VTU
Approved by AICTE, New Delhi & Government of Karnataka
Since 1993

I Semester (Mechanical Engineering Stream) **(For Physics Group)**

Sl. No	Course and Course Code		Course Title	TD/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	*ASC(IC)	**BMATM101**	Calculus, Ordinary Differential equations & Linear Algebra	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	**BPHYM102**	Applied Physics for Mechanical Engineering Stream	PHY	2	2	2	0	03	50	50	100	04
3	ESC	**BEMEM103**	Elements of Mechanical Engineering	Mechanical	2	2	0	0	03	50	50	100	03
4	ESC-I	**BESCK104x**	Engineering Science Course-I	Respective EnggDept.	3	0	0	0	03	50	50	100	03
5	ETC-I	**BETCK105x**	Emerging Technology Course-I	AnyDept	3	0	0	0	03	50	50	100	03
	OR												
	PLC-I	**BPLCK105x**	Programming language Course-I		2	0	2	0	03				
6	AEC	**BENGK106**	English for Engineers	Humanities	1	0	0	0	01	50	50	100	01
			OR										
		BENGL106	English for Engineers (Practical)										
7	HSMC	**BKSKK107 / BKBKK107**	Samskrutika Kannada/BalakeKannada	Humanities	1	0	0	0	01	50	50	100	01
		OR											
		BICOK107	Indian Constitution										
8	AEC/SDC	**BIDTK158**	Innovation and Design Thinking	AnyDept	1	0	0	0	01	50	50	100	01
		OR											
		BSFHK158	Scientific Foundations of Health		1	0	0	0	01				

TOTAL						**400**	**400**	**800**	**20**

SDA-Skill Development Activities, **TD/PSB**- Teaching Department / Paper Setting Board, **ASC**-Applied Science Course, **ESC**- Engineering Science Courses, **ETC**-Emerging Technology Course, **AEC**- Ability Enhancement Course, **HSMS**-Humanity and Social Science and management Course, **SDC**- Skill Development Course,
CIE–Continuous Internal Evaluation, **SEE**- Semester End Examination, **IC** – Integrated Course (Theory Course Integrated with Practical Course)

Credit Definition: **1-** hour Lecture **(L)** per week=**1Credit** 2-hoursTutorial**(T)** per week=**1Credit** **2-** hours Practical / Drawing (**P**) per week=**1Credit** **2-**hous Skill Development Actives **(SDA)** per week = **1 Credit**	04-Credits courses are to be designed for 50 hours of Teaching-Learning Session 04- Credits (IC) are to be designed for 40 hours' theory and 12-14 hours of practicalsessions03-Credits courses are to be designed for 40 hours of Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 12-15 hours of Teaching-Learning sessions

Student's Induction Program: Motivating (Inspiring) Activities under the Induction program – The main aim of the induction program is to provide newly admitted students a broad understanding of society, relationships, and values. Along with the knowledge and skill of his/her study, students' character needs to be nurtured as an essential quality by which he/she would understand and fulfill the responsibility as an engineer. The following activities are to be covered in 21 days. Physical Activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to Local areas, Familiarization with Department/Branch and Innovation, etc. For details, refer the ANNEXURE-I of Induction Programs notification of the University published at the beginning of the 1st semester.

AICTE Activity Points to be earned by students admitted to BE/ B.Tech., / B. Plan day college program (For more details refer to Chapter 6, AICTE Activity Point Program, Model Internship Guidelines): Over and above the academic grades, every regular student admitted to the 4 years Degree program and every student entering 4 years Degree programs through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Program. Students transferred from other Universities to the fifth semester are required to earn 50 Activity Points from the year of entry to VTU. The Activity Points earned shall be reflected on the student's eighth semester Grade Card. The activities can be spread over the years, any time during the semester weekends, and holidays, as per the liking and convenience of the student from the year of entry to the program. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression. In case students fail to earn the prescribed activity Points, an Eighth Semester Grade Card shall be issued only after earning the required activity points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.

-** BMATM101 Shall have the 03 hours of theory examination (SEE), however, practical sessions question shall be included in the theory question papers. * The mathematics subject should be taught by a single faculty member per division, with no sharing of the course (subject) module-wise by different faculty members.**
#- BPHYM102 SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination
ESC or ETC of 03 credits Courses shall have only a theory component (L:T :P:S=3:0:0:0) or if the nature the of course required practical learning syllabus shall be designed as an Integrated course (L:T:P:S= 2:0:2:0). **All 01 Credit-** courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ

(ESC-I) Engineering Science Courses-I					(ETC-I) Emerging Technology Courses-I					
Code	**Title**	**L**	**T**	**P**	**Code**	Title	**L**	**T**	**P**	**S**
BESCK104A	Introduction to Civil Engineering	3	0	0	**BETCK105A**	Smart Materials	3	0	0	0
BESCK104B	Introduction to Electrical Engineering	3	0	0	**BETCK105B**	Green Buildings	3	0	0	0
BESCK104C	Introduction to Electronics & Communication	3	0	0	**BETCK105C**	Introduction to Nano Science	3	0	0	0
BESCK104D	Introduction to Mechanical Engineering	3	0	0	**BETCK105D**	Introduction to Sustainable Engineering	3	0	0	0
BESCK104E	Introduction to C Programming	2	0	2	**BETCK105E**	Renewable Energy Sources	3	0	0	0
					BETCK105F	Additive manufacturing	3	0	0	0
					BETCK105G	Global climate Change	3	0	0	0
					BETCK105H	Introduction to Internet of Things (IOT)	3	0	0	0
					BETCK105I	Introduction to Cyber security	3	0	0	0
(PLC-I) Programming Language Courses-I					**BETCK105J**	Introduction To Embedded Systems	3	0	0	0
Code	**Title**	**L**	**T**	**P**	**BETCK105K**	Fundamentals of Sensors Technology	3	0	0	0
BPLCK105A	Principles of Web Programming	2	0	2	**BETCK105L**	Human Factors in Engineering	3	0	0	0
BPLCK105B	Python Programming ForBeginners	2	0	2	**BETCK105M**	Industry 4.0	3	0	0	0
BPLCK105C	Basics of JAVA programming	2	0	2	**BETCK105N**	Fundamentals of Semiconductor Devices	3	0	0	0
BPLCK105D	Introduction to C++ Programming	2	0	2	**BETCK105O**	Introduction to Smart Cities	3	0	0	0
					BETCK105P	Introduction to Drone Technology	3	0	0	0
					BETCK105Q	Introduction to Artificial Intelligence	3	0	0	0
					BETCK105R	Elements of Block Chain Technology	3	0	0	0
					BETCK105S	IDEA (Innovation Development, Evaluation & Application) Lab	0	0	0	3
The course BESC104E, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by faculty of ANY DEPARTMENT										

- The student has to select one course from the ESC-I group.
- MES stream Students shall opt for any one of the courses from the ESC-I group **except, BESCK104D-Introduction to Mechanical Engineering**
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

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NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
NBA NATIONAL BOARD OF ACCREDITATION

II Semester(Mechanical Engineering Stream) **(For the students who attend the 1st semester under Physics Group)**

Sl. No	Course and Course Code		Course Title	TD/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	*ASC(IC)	**BMATM201**	Advanced Calculus, Partial differential equations & Numerical techniques	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	**BCHEM202**	Chemistry for Mechanical Engineering stream	Chemistry	2	2	2	0	03	50	50	100	04
3	ESC	**BCEDK203**	Computer Aided Engineering Drawing for Mechanical Engineering	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	03
4	ESC-II	**BESCK204x**	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	03	50	50	100	03
5	PLC-II	**BETCK205x**	Programming Language Course-II	Any Dept	3	0	0	0	03	50	50	100	03
	OR												
	ETC-II	**BETCK205x**	Emerging Technology Course-II		3	0	0	0	03				
6	AEC	**BENGK206**	English for Engineers	Humanities	1	0	0	0	01	50	50	100	01
			OR										
		BENGL206	English for Engineers (Practical)										
7	HSMC	**BICOK207**	Indian Constitution	Humanities	1	0	0	0	01	50	50	100	01
		OR											
		BKSKK207/ BKBKK207	Samskrutika Kannada/ Balake Kannada										
8	AEC/SEC	**BSFHK258**	Scientific Foundations for Health	Any Dept	1	0	0	0	01	50	50	100	01
		OR											
		BIDTK258	Innovation and Design Thinking		1	0	0	0	01				

TOTAL						400	400	800	20

SDA-Skill Development Activities, **TD/PSB**- Teaching Department / Paper Setting Board, **ASC**-Applied Science Course, **ESC**- Engineering Science Courses, **ETC**- Emerging Technology Course, **AEC**- Ability Enhancement Course, **HSMS**-Humanity and Social Science and management Course, **SDC**- Skill Development Course, **CIE** -Continuous Internal Evaluation, **SEE**- Semester End Examination, **IC** – Integrated Course (Theory Course Integrated with Practical Course)

-** BMATM201 Shall have the 03 hours of theory examination (SEE), however, practical sessions question shall be included in the theory question papers. * The mathematics subject should be taught by a single faculty member per division, with no sharing of the course (subject) module-wise by different faculty members.**

#- BCHEM202**-** SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination

ESC or ETC of 03 credits Courses shall have only a theory component (L:T :P:S=3:0:0:0) or if the nature the of course required practical learning syllabus shall be designed as an Integrated course (L:T:P:S= 2:0:2:0)

All 01 Credit- courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ

(ESC-II) Engineering Science Courses-II					(ETC-II) Emerging Technology Courses-II					
Code	**Title**	**L**	**T**	**P**	**Code**	**Title**	**L**	**T**	**P**	**S**
BESCK204A	Introduction to Civil Engineering	3	0	0	**BETCK205A**	Smart Materials	3	0	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0	**BETCK205B**	Green Buildings	3	0	0	0
BESCK204C	Introduction to Electronics & Communication	3	0	0	**BETCK205C**	Introduction to Nano Science	3	0	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	**BETCK205D**	Introduction to Sustainable Engineering	3	0	0	0
BESCK204E	Introduction to C Programming	2	0	2	**BETCK205E**	Renewable Energy Sources	3	0	0	0
					BETCK205F	Additive manufacturing	3	0	0	0
					BETCK205G	Global climate Change	3	0	0	0
					BETCK205H	Introduction to Internet of Things (IOT)	3	0	0	0
					BETCK205I	Introduction to Cyber security	3	0	0	0
(PLC-I) Programming Language Courses-I					**BETCK205J**	Introduction To Embedded Systems	3	0	0	0
Code	**Title**	**L**	**T**	**P**	**BETCK205K**	Fundamentals of Sensors Technology	3	0	0	0
BPLCK205A	Principles of Web Programming	2	0	2	**BETCK205L**	Human Factors in Engineering	3	0	0	0
BPLCK205B	Python Programming for Beginners	2	0	2	**BETCK205M**	Industry 4.0	3	0	0	0
BPLCK205C	Basics of JAVA programming	2	0	2	**BETCK205N**	Fundamentals of Semiconductor Devices	3	0	0	0
BPLCK205D	Introduction to C++ Programming	2	0	2	**BETCK205O**	Introduction to Smart Cities	3	0	0	0
					BETCK205P	Introduction to Drone Technology	3	0	0	0
					BETCK205Q	Introduction to Artificial Intelligence	3	0	0	0
					BETCK205R	Elements of Block Chain Technology	3	0	0	0
					BETCK205S	IDEA (Innovation Development, Evaluation & Application) Lab	0	0	0	3

The course BESCK205E**, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by faculty of ANY DEPARTMENT**

•	• The student has to select one course from the ESC-II group. • Mechanical Engineering stream Students shall opt for any one of the courses from the ESC-II group **except,** BESCK204D **-Introduction to Mechanical Engineering** • The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester • The students must select one course from either ETC-II or PLC-II group. • If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

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I Semester (Mechanical Engineering Stream) **(For Chemistry Group)**

Sl. No	Course and Course Code		Course Title	TD/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	*ASC(IC)	**BMATM101**	Calculus, Ordinary Differential equations & Linear Algebra	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	**BCHEM102**	Chemistry for Mechanical Engineering stream	Chemistry	2	2	2	0	03	50	50	100	04
3	ESC	**BCEDK103**	Computer Aided Engineering Drawing for Mechanical Engineering	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	03
4	ESC-I	**BESCK104x**	Engineering Science Course-I	Respective Engg Dept	3	0	0	0	03	50	50	100	03
5	ETC-I	**BETCK105x**	Emerging Technology Course-I	Any Dept	3	0	0	0	03	50	50	100	03
	OR												
	PLC-I	**BPLCK105x**	Programming Language Course-I		2	0	2	0	03				
6	AEC	**BENGK106**	English for Engineers	Humanities	1	0	0	0	01	50	50	100	01
			OR										
		BENGL106	English for Engineers (Practical)										
7	HSMC	**BICOK107**	Indian Constitution	Humanities	1	0	0	0	01	50	50	100	01
		OR											
		BKSK0107 \ BKBKK107	Samskrutika Kannada/ Balake Kannada										
8	AEC/SDC	**BSFHK158**	Scientific Foundations for Health	Any Dept	1	0	0	0	01	50	50	100	01
		OR											
		BIDTK158	Innovation and Design Thinking		1	0	0	0	01				

TOTAL						**400**	**400**	**800**	**20**

SDA-Skill Development Activities, **TD/PSB**- Teaching Department / Paper Setting Board, **ASC**-Applied Science Course, **ESC**- Engineering Science Courses, **ETC**- Emerging Technology Course, **AEC**- Ability Enhancement Course, **HSMS**-Humanity and Social Science and management Course, **SDC**- Skill Development Course, **CIE** -Continuous Internal Evaluation, **SEE**- Semester End Examination, **IC** – Integrated Course (Theory Course Integrated with Practical Course)

-** BMATM101 Shall have the 03 hours of theory examination (SEE), however, practical sessions question shall be included in the theory question papers. *** **The mathematics subject should be taught by a single faculty member per division, with no sharing of the course (subject) module-wise by different faculty members.**

#- BCHEM102**-** SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination

ESC or ETC of 03 credits Courses shall have only a theory component (L: T :P:S=3:0:0:0) or if the nature the of course required practical learning syllabus shall be designed as an Integrated course (L:T:P:S= 2:0:2:0) Questions from the practical component shall be included in SEE, however, there is no SEE for practical component.

All 01 Credit- courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ

Credit Definition:	
1- hour Lecture **(L)** per week=**1Credit** 2-hours Tutorial **(T)** per week=**1Credit** **2-** hours Practical / Drawing (**P**) per week=**1Credit** **2-**hous Skill Development Actives **(SDA)** per week = **1 Credit**	04-Credits courses are to be designed for 50 hours of Teaching-Learning Session 04- Credits (IC) are to be designed for 40 hours' theory and 12-14 hours of practical sessions 03-Credits courses are to be designed for 40 hours of Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 12-15 hours of Teaching-Learning sessions

Student's Induction Program: Motivating (Inspiring) Activities under the Induction program – The main aim of the induction program is to provide newly admitted students a broad understanding of society, relationships, and values. Along with the knowledge and skill of his/her study, students' character needs to be nurtured as an essential quality by which he/she would understand and fulfill the responsibility as an engineer. The following activities are to be covered in 21 days. Physical Activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to Local areas, Familiarization with Department/Branch and Innovation, etc. For details, refer the ANNEXURE-I of Induction Programs notification of the University published at the beginning of the 1st semester.

AICTE Activity Points to be earned by students admitted to BE/ B.Tech., / B. Plan day college program (For more details refer to Chapter 6, AICTE Activity Point Program, Model Internship Guidelines): Over and above the academic grades, every regular student admitted to the 4 years Degree program and every student entering 4 years Degree programs through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Program. Students transferred from other Universities to the fifth semester are required to earn 50 Activity Points from the year of entry to VTU. The Activity Points earned shall be reflected on the student's eighth semester Grade Card. The activities can be spread over the years, any time during the semester weekends, and holidays, as per the liking and convenience of the student from the year of entry to the program. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression. In case students fail to earn the prescribed activity Points, an Eighth Semester Grade Card shall be issued only after earning the required activity points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.

(ESC-I) Engineering Science Courses-I					(ETC-I) Emerging Technology Courses-I					
Code	**Title**	**L**	**T**	**P**	**Code**	Title	**L**	**T**	**P**	**S**
BESCK104A	Introduction to Civil Engineering	3	0	0	**BETCK105A**	Smart Materials	3	0	0	0
BESCK104B	Introduction to Electrical Engineering	3	0	0	**BETCK105B**	Green Buildings	3	0	0	0
BESCK104C	Introduction to Electronics & Communication	3	0	0	**BETCK105C**	Introduction to Nano Science	3	0	0	0
BESCK104D	Introduction to Mechanical Engineering	3	0	0	**BETCK105D**	Introduction to Sustainable Engineering	3	0	0	0
BESCK104E	Introduction to C Programming	2	0	2	**BETCK105E**	Renewable Energy Sources	3	0	0	0
					BETCK105F	Additive manufacturing	3	0	0	0
					BETCK105G	Global climate Change	3	0	0	0
					BETCK105H	Introduction to Internet of Things (IOT)	3	0	0	0
					BETCK105I	Introduction to Cyber security	3	0	0	0
(PLC-I) Programming Language Courses-I					**BETCK105J**	Introduction To Embedded Systems	3	0	0	0
Code	**Title**	**L**	**T**	**P**	**BETCK105K**	Fundamentals of Sensors Technology	3	0	0	0
BPLCK105A	Principles of Web Programming	2	0	2	**BETCK105L**	Human Factors in Engineering	3	0	0	0
BPLCK105B	Python Programming ForBeginners	2	0	2	**BETCK105M**	Industry 4.0	3	0	0	0
BPLCK105C	Basics of JAVA programming	2	0	2	**BETCK105N**	Fundamentals of Semiconductor Devices	3	0	0	0
BPLCK105D	Introduction to C++ Programming	2	0	2	**BETCK105O**	Introduction to Smart Cities	3	0	0	0
					BETCK105P	Introduction to Drone Technology	3	0	0	0
					BETCK105Q	Introduction to Artificial Intelligence	3	0	0	0
					BETCK105R	Elements of Block Chain Technology	3	0	0	0
					BETCK105S	IDEA (Innovation Development, Evaluation & Application) Lab	0	0	0	3
The course BESC104E, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by faculty of ANY DEPARTMENT										

- The student has to select one course from the ESC-I group.
- MES stream Students shall opt for any one of the courses from the ESC-I group **except,** BESCK104D **-Introduction to MechanicalEngineering**
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

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Since 1993

II Semester (Mechanical Engineering Stream) **(For the students who have attended 1semster under Chemistry Group)**

Sl. No	Course and CourseCode		CourseTitle	TD/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	*ASC(IC)	**BMATM201**	Advanced Calculus, Partial differential equations & Numerical techniques	Maths	3	0	2	0	03	50		50	100	04
2	#ASC(IC)	**BPHYM202**	**A**pplied Physics for Mechanical Engineering Stream	PHY	2	2	2	0	03	50		50	100	04
3	ESC	**BEMEM203**	Elements of Mechanical Engineering	Mechanical	2	2	0	0	03	50		50	100	03
4	ESC-II	**BESCK204x**	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	03	50		50	100	03
5	PLC-II	**BPLCK205x**	Programming Language Course-II	Any Dept	2	0	2	0	03	50		50	100	03
	OR													
	ETC-II	**BETCK205x**	Emerging Technology Course-II		3	0	0	0	03					
6	AEC	**BENGK206**	English for Engineers	Humanities	0	2	0	0	01	50		50	100	01
			OR											
		BENGL206	English for Engineers (Practical)											
7	HSMC	**BKSKK207 \ BKBKK207**	Samskrutika Kannada/ Balake Kannada	Humanities	0	2	0	0	01	50		50	100	01
		OR												
		BICOK207	Indian Constitution											
8	AEC/SDC	**BIDTK258**	Innovation and Design Thinking	Any	0	0	2	0	02	50		50	100	01
		OR												

	BSFHK258	Scientific Foundations of Health	Dept	1	0	0	0	01							
			TOTAL						**400**		**400**	**800**	**20**		

SDA-Skill Development Activities, **TD/PSB**- Teaching Department / Paper Setting Board, **ASC**-Applied Science Course, **ESC**- Engineering Science Courses, **ETC**- Emerging Technology Course, **AEC**- Ability Enhancement Course, **HSMS**-Humanity and Social Science and management Course, **SDC**- Skill Development Course, **CIE**–Continuous Internal Evaluation, **SEE**- Semester End Examination, **IC** – Integrated Course (Theory Course Integrated with Practical Course)

-** BMATM201 Shall have the 03 hours of theory examination (SEE), however, practical sessions question shall be included in the theory question papers. * The mathematics subject should be taught by a single faculty member per division, with no sharing of the course (subject) module-wise by different facultymembers.**

#- BPHYM202 SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination

ESC or ETC of 03 credits Courses shall have only a theory component (L:T :P:S=3:0:0:0) or if the nature the of course required practical learning syllabus shall be designedas an Integrated course (L:T:P:S= 2:0:2:0),. **All 01 Credit-** courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ

(ESC-II) Engineering Science Courses-II

Code	Title	L	T	P
BESCK204A	Introduction to Civil Engineering	3	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0
BESCK204C	Introduction to Electronics & Communication	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2

(PLC-I) Programming Language Courses-I

Code	Title	L	T	P
BPLCK205A	Principles of Web Programming	2	0	2
BPLCK205B	Python Programming for Beginners	2	0	2
BPLCK205C	Basics of JAVA programming	2	0	2
BPLCK205D	Introduction to C++ Programming	2	0	2

(ETC-II) Emerging Technology Courses-II

Code	Title	L	T	P	S
BETCK205A	Smart Materials	3	0	0	0
BETCK205B	Green Buildings	3	0	0	0
BETCK205C	Introduction to Nano Science	3	0	0	0
BETCK205D	Introduction to Sustainable Engineering	3	0	0	0
BETCK205E	Renewable Energy Sources	3	0	0	0
BETCK205F	Additive manufacturing	3	0	0	0
BETCK205G	Global climate Change	3	0	0	0
BETCK205H	Introduction to Internet of Things (IOT)	3	0	0	0
BETCK205I	Introduction to Cyber security	3	0	0	0
BETCK205J	Introduction To Embedded Systems	3	0	0	0
BETCK205K	Fundamentals of Sensors Technology	3	0	0	0
BETCK205L	Human Factors in Engineering	3	0	0	0
BETCK205M	Industry 4.0	3	0	0	0
BETCK205N	Fundamentals of Semiconductor Devices	3	0	0	0
BETCK205O	Introduction to Smart Cities	3	0	0	0
BETCK205P	Introduction to Drone Technology	3	0	0	0
BETCK205Q	Introduction to Artificial Intelligence	3	0	0	0
BETCK205R	Elements of Block Chain Technology	3	0	0	0
BETCK205S	IDEA (Innovation Development, Evaluation & Application) Lab	0	0	0	3

The course BESCK204E**, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by faculty of ANY DEPARTMENT**

- The student has to select one course from the ESC-II group.
- Mechanical Engineering stream Students shall opt for any one of the courses from the ESC-II group **except,** BESCK204D **-Introduction to Mechanical Engineering**
- The students have to opt for the courses from ESC group without repeating the course in either 1^{st} or 2^{nd} semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1^{st} semester he/she has to select the course from PLC-II in the 2^{nd} semester and vice-versa