

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in Biomedical Engineering**Scheme of Teaching and Examinations 2022**

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2023-24)

| III SEMESTER | | | | | | | | | | | | | |
|--------------|----------|-------------|---|---|-----------------------------|----------|--------------------|-----|-------------------|------------|------------|-------------|-----------|
| Sl. No | Course | 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 | BBM301 | Mathematics – III for EES | TD: Maths PSB: Maths | 3 | 0 | 0 | | 03 | 50 | 50 | 100 | 3 |
| 2 | IPCC | BBM302 | Analog Electronic Circuits | TD: BM PSB: EI/BM/ML | 3 | 0 | 2 | | 03 | 50 | 50 | 100 | 4 |
| 3 | IPCC | BBM303 | Digital Design and HDL | TD: BM PSB: EI/BM/ML | 3 | 0 | 2 | | 03 | 50 | 50 | 100 | 4 |
| 4 | PCC | BBM304 | Instrumentation, Measurements and Biomedical Transducers | TD: BM PSB: EI/BM/ML | 3 | 0 | 0 | | 03 | 50 | 50 | 100 | 3 |
| 5 | PCCL | BBM305 | Measurement and Biomedical Transducers Lab | TD: BM PSB: EI/BM/ML | 0 | 0 | 2 | | 03 | 50 | 50 | 100 | 1 |
| 6 | ESC | BBM306x | ESC/ETC/PLC | TD: BM PSB: EI/BM/ML | 3 | 0 | 0 | | 03 | 50 | 50 | 100 | 3 |
| 7 | UHV | BSCK307 | Social Connect and Responsibility | Any Department | 0 | 0 | 2 | | 01 | 100 | --- | 100 | 1 |
| 8 | AEC/ SEC | BBM358x | Ability Enhancement Course/Skill Enhancement Course - III | | If the course is a Theory | | | | 01 | 50 | 50 | 100 | 1 |
| | | | | | 1 | 0 | 0 | | | | | | |
| | | | | | If a course is a laboratory | | | | 02 | | | | |
| | | | | | 0 | 0 | 2 | | | | | | |
| 9 | MC | BNSK359 | National Service Scheme (NSS) | NSS coordinator | 0 | 0 | 2 | | | 100 | --- | 100 | 0 |
| | | BPEK359 | Physical Education (PE) (Sports and Athletics) | Physical Education Director | | | | | | | | | |
| | | BYOK359 | Yoga | Yoga Teacher | | | | | | | | | |
| Total | | | | | | | | | | 550 | 350 | 900 | 20 |

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) | | | |
|--|---|---------|--|
| BBM306A | Micro Electro Mechanical Systems [MEMS] | BBM306C | Nano Science and Nano Technology |
| BBM306B | Operating Systems | BBM306D | Embedded C |
| Ability Enhancement Course – III | | | |
| BBM358A | Human Anatomy and Physiology | BBM358C | Digital Design Lab using Pspice / MultiSIM |
| BBM358B | Network Analysis | BBM358D | AEC Lab using Pspice / MultiSIM |
| <p>Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practicals of the same course. Credit for IPCC can be 04 and its Teaching– Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23 may please be referred.</p> <p>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.</p> | | | |

| VARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI | | | | | | | | | | | | | |
|---|------------------------|---------|---|---|-------------------------|----------|--------------------|-------------|-------------------|------------|------------|------------|-------------|
| B.E. in Biomedical Engineering | | | | | | | | | | | | | |
| Scheme of Teaching and Examinations 2022 | | | | | | | | | | | | | |
| Outcome Based Education (OBE) and Choice Based Credit System (CBCS) | | | | | | | | | | | | | |
| (Effective from the academic year 2023-24) | | | | | | | | | | | | | |
| IV 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 | PCC | BBM401 | Signal Conditioning and Data Acquisition Circuits | TD: BM PSB: EI/BM/ML | 3 | 0 | 0 | | 03 | 50 | 50 | 100 | 3 |
| 2 | IPCC | BBM402 | Embedded Controllers | TD: BM PSB: EI/BM/ML | 3 | 0 | 2 | | 03 | 50 | 50 | 100 | 4 |
| 3 | IPCC | BBM403 | Java Programming | TD: BM PSB: EI/BM/ML | 4 | 0 | 0 | | 03 | 50 | 50 | 100 | 4 |
| 4 | PCCL | BBM404 | Signal Conditioning and Data Acquisition Circuits Lab | TD: BM PSB: EI/BM/ML | 0 | 0 | 2 | | 03 | 50 | 50 | 100 | 1 |
| 5 | ESC | BBM405x | ESC/ETC/PLC | TD: BM PSB: EI/BM/ML | 3 | 0 | 0 | | 03 | 50 | 50 | 100 | 3 |
| 6 | AEC/ SEC | BBM456x | Ability Enhancement Course/Skill Enhancement Course- IV | TD and PSB: Concerned department | If the course is Theory | | | | 01 | 50 | 50 | 100 | 1 |
| | | | | | 1 | 0 | 0 | | | | | | |
| | | | | | If the course is a lab | | | | 02 | | | | |
| 4 | BSC | BBOK407 | Biology For Engineers | TD / PSB: BT, CHE, | 3 | 0 | 0 | | 03 | 50 | 50 | 100 | 3 |
| 7 | UHV | BUHK408 | Universal human values course | Any Department | 1 | 0 | 0 | | 01 | 50 | 50 | 100 | 1 |
| 9 | MC | BNSK459 | National Service Scheme (NSS) | NSS coordinator | 0 | 0 | 2 | | 100 | --- | 100 | 0 | |
| | | BPEK459 | Physical Education (PE) (Sports and Athletics) | Physical Education Director | | | | | | | | | |
| | | BYOK459 | Yoga | Yoga Teacher | | | | | | | | | |
| | | | | | | | | | Total | 500 | 400 | 900 | 20 |

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.

Ability Enhancement Course / Skill Enhancement Course - IV

| | | | |
|---------|-------------------------------|---------|---|
| BBM456A | Programming in MATLAB | BBM456C | Signal Conditioning Lab using Pspice / MultiSIM |
| BBM456B | Bioinstrumentation Techniques | BBM456D | Bioelectric Phenomena |

Engineering Science Course (ESC/ETC/PLC)

| | | | |
|---------|--|---------|----------------------------|
| BBM405A | Biomedical Instrumentation | BBM405C | Web Technology |
| BBM405B | Python Programming for Instrumentation | BBM405D | Mathematics for Biomedical |

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