

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

B.E.in AERONAUTICAL ENGINEERING

(Effective from the academic year 2018 – 19)

VIII SEMESTER

| VIII SEMESTER | | | | | | | | | | | | |
|---------------|------------------------|-----------|---------------------------|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| Sl. No. | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18AE81 | Flight Vehicle Design | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18AE82X | Professional Elective - 4 | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18AEP83 | Project Work Phase - 2 | | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18 AE S84 | Technical Seminar | | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | Internship | 18AEI85 | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| Total | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

| Course code under 18XX82X | Course Title |
|---------------------------|-----------------------|
| 18AE821 | Avionics |
| 18AE822 | Boundary Layer Theory |
| 18AE823 | Helicopter Dynamics |
| 18AE824 | Flight Testing |

Project Work

CIE procedure for Project Work Phase - 2:

(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) 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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

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Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

| VI SEMESTER | | | | | | | | | | | | |
|-------------|------------------------|----------|--|---|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18AU61 | Automotive Chassis & Suspension | Automobile Engg. | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 2 | PCC | 18AU62 | Heat and Mass transfer | Automobile Engg. | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 3 | PCC | 18AU63 | Design of Machine Elements-II | Automobile Engg. | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 4 | PEC | 18AU64X | Professional Elective -1 | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18AU65X | Open Elective -A | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18AUL66 | Automotive Chassis Components Lab | Automobile Engg. | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | PCC | 18AUL67 | Engine Testing and Emission Measurement Lab. | Automobile Engg. | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 8 | MP | 18AUMP68 | Mini-project | Automobile Engg. | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 |
| 9 | Internship | -- | Internship | To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | | | | | | | | |
| TOTAL | | | | | 15 | 10 | 06 | 24 | 320 | 480 | 800 | 24 |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

| Course code under 18AU64X | Course Title |
|---------------------------|--|
| 18AU641 | Alternative Energy Sources for Automobiles |
| 18AU642 | Composite Materials |
| 18AU643 | Automotive Pollution and Control |

Open Elective -A

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18AU65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:

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.

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 senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of 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.

(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of 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.

SEE for Mini-project:

(i) **Single discipline:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: All the students admitted to III year of BE/B.Tech. shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship

| VI SEMESTER | | | | | | | | | | | | |
|-------------|------------------------|---------|--|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | | |
| 1 | PCC | 18AU71 | Finite Element Modelling and Analysis | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PCC | 18AU72 | Automotive Electrical and Electronic Systems | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | PEC | 18AU73X | Professional Elective - 2 | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 4 | PEC | 18AU74X | Professional Elective - 3 | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18AU75X | Open Elective -B | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18AUL76 | Automobile Scanning and Re-conditioning lab | Automobile Engg. | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| | PCC | 18AUL77 | Modelling and Analysis Lab | Automobile Engg. | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | Project | 18AUP78 | Project Work Phase - 1 | Automobile Engg. | -- | -- | 2 | -- | 100 | -- | 100 | 1 |
| 8 | Internship | -- | Internship | (If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters) | | | | | | | | |
| TOTAL | | | | | 17 | 04 | 04 | 18 | 340 | 360 | 700 | 20 |

Professional Elective - 2

| | |
|-----------------------------------|-----------------------------------|
| Professional Elective - 2 | |
| Course code under 18AU73X | Course Title |
| 18AU731 | CAD/CAM |
| 18AU732 | Earthmoving Equipment & Tractors |
| 18AU733 | Computer Integrated Manufacturing |
| Professional Electives - 3 | |
| Course code under 18AU74X | Course Title |
| 18AU741 | Control Engineering |
| 18AU742 | Operations Research |
| 18AU743 | Two and Three wheeled Vehicle |

Open Elective -B

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

CIE procedure for Project Work Phase - 1:

(i) **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 phase -I, shall be based on the evaluation of the project work phase -I Report (covering Literature Survey, Problem identification, Objectives and Methodology), 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.

(ii) 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 phase -1, shall be based on the evaluation of project work phase -1 Report (covering Literature Survey,

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| VIII SEMESTER | | | | | | | | | | | | |
|---------------|------------------------|---------|-------------------------------------|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18AU81 | Vehicle Body Engineering and Safety | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18AU82X | Professional Elective - 4 | Automobile Engg. | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18AUP83 | Project Work Phase - 2 | Automobile Engg. | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18AUS84 | Technical Seminar | Automobile Engg. | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | Internship | 18AUI85 | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

| Course code under 18AU82X | Course Title |
|---------------------------|------------------------------|
| 18AU821 | Mechanical Vibrations |
| 18AU822 | Advanced I. C. Engines |
| 18AU823 | Electric and Hybrid Vehicle. |

Project Work

CIE procedure for Project Work Phase - 2:

(i) **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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) **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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) **Single discipline:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).



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Programme: BIOTECHNOLOGY

VIII SEMESTER

| Sl. No | Course and Course Code | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|--|---|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | |
| 1 | PCC | Regulatory Affairs in Biotech Industry | Biotech | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | Professional Elective - 4 | Biotech | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | Project Work Phase - 2 | - | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | Technical Seminar | - | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | Internship | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | -- | -- | -- | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

| Course code under 18BT82X | Course Title |
|---------------------------|-----------------------------|
| 18BT821 | Environmental Biotechnology |
| 18BT822 | Industrial Microbiology |
| 18BT823 | Marine Biotechnology |

Project Work

CIE procedure for Project Work Phase - 2:

(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) 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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship, will be declared as failed and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case a student fails to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points.

The principals shall include the prescribed activity points earned by the students along with the CIE marks.

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Programme: BIOTECHNOLOGY

VI SEMESTER

| Sl. No | Course and Course Code | Course Title | Teaching Department | Teaching Hours /Week | | | | Examination | | | | Credits |
|--------|------------------------|--------------|---|---|----------|--------------------|-------------------|-------------|-----------|-------------|----|---------|
| | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | | |
| | | | | | | | | | | | L | |
| 1 | PCC | 18BT61 | Process Control & Automation | 4 | 1 | -- | 03 | 40 | 60 | 100 | 4 | |
| 2 | PCC | 18BT62 | Bioprocess Equipment Design & CAED | 4 | 2 | -- | 04 | 40 | 60 | 100 | 4 | |
| 3 | PCC | 18BT63 | Bioinformatics | 4 | -- | -- | 03 | 40 | 60 | 100 | 4 | |
| 4 | PEC | 18BT64X | Professional Elective -I | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | |
| 5 | OEC | 18BT65X | Open Elective -A | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | |
| 6 | PCC | 18BT66 | Process Control & Automation Laboratory | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 | |
| 7 | PCC | 18BT67 | Bioinformatics Laboratory | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 | |
| 8 | MP | 18BTMP68 | Mini-project | -- | 1 | 2 | 03 | 40 | 60 | 100 | 2 | |
| 9 | Internship | -- | Internship | To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | | | | | | | | |
| TOTAL | | | | 18 | 08 | 06 | 25 | 320 | 480 | 800 | 24 | |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Mini-project work:

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.

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 senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of 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.

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

The CIE marks awarded for the Mini-project, shall be based on the evaluation of 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.

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VIII SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|---------|---------------------------|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18CS81 | Internet of Things | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18CS82X | Professional Elective – 4 | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18CSP83 | Project Work Phase – 2 | CS / IS | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18CSS84 | Technical Seminar | CS / IS | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | INT | 18CSI85 | Internship | (Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 | |

Note: PCC: Professional Core, PEC: Professional Elective, OEC: Open Elective, INT: Internship.

Professional Electives – 4

| Course code under 18CS82X | Course Title |
|---------------------------|--|
| 18CS821 | Mobile Computing |
| 18CS822 | Storage Area Networks |
| 18CS823 | NoSQL Database |
| 18CS824 | Multicore Architecture and Programming |

Project Work CIE procedure for Project Work Phase - 2:

(i) **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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) **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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) **Single discipline:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card. Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).



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VI SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|----------|--|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18CS61 | System Software and Compilers | CS / IS | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 2 | PCC | 18CS62 | Computer Graphics and Visualization | CS / IS | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 3 | PCC | 18CS63 | Web Technology and its applications | CS / IS | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 4 | PEC | 18CS64X | Professional Elective -I | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18CS65X | Open Elective –A | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18CSL66 | System Software Laboratory | CS / IS | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | PCC | 18CSL67 | Computer Graphics Laboratory with mini project | CS / IS | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 8 | MP | 18CSMP68 | Mobile Application Development | CS / IS | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 |
| 9 | INT | -- | Internship | (To be carried out during the intervening vacations of VI and VII semesters) | | | | -- | -- | -- | -- | -- |
| TOTAL | | | | | 15 | 10 | 06 | 24 | 320 | 480 | 800 | 24 |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project, INT: Internship.

Professional Elective -I

| Course code under 18XX64X | Course Title |
|---------------------------|--------------------------------------|
| 18CS641 | Data Mining and Data Warehousing |
| 18CS642 | Object Oriented Modelling and Design |
| 18CS643 | Cloud Computing and its Applications |
| 18CS644 | Advanced JAVA and J2EE |
| 18CS645 | System Modelling and Simulation |

Open Elective –A (Not for CSE / ISE Programs)

| | |
|---------|--|
| 18CS651 | Mobile Application Development |
| 18CS652 | Introduction to Data Structures and Algorithms |
| 18CS653 | Programming in JAVA |
| 18CS654 | Introduction to Operating System |

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS65X).

Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Adviser/Mentor.

Mini-project work: 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.

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 senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the Mini-project work, shall be based on the evaluation of 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.

(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college. The CIE marks awarded for the Mini-project, shall be based on the evaluation of 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.

SEE for Mini-project:

(i) **Single discipline:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not takeup/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

SCHEME OF TEACHING AND EXAMINATION
B.E Telecommunication Engineering

VIII SEMESTER

| Sl. No | Subject Code | Title | Teaching Hours /Week | | Examination | | | | Credit |
|--------|--------------|--|----------------------|--------------------|-------------|------------|-------------------------|-------------|--------|
| | | | Theory | Practical /Drawing | Duration | I.A. Marks | Theory/ Practical Marks | Total Marks | |
| 1 | 15EC81 | Wireless Cellular and LTE 4G Broadband | 4 | - | 3 | 20 | 80 | 100 | 4 |
| 2 | 15EC82 | Fiber Optics and Networks | 4 | - | 3 | 20 | 80 | 100 | 4 |
| 3 | 15XX83X | Professional Elective-5 | 3 | - | 3 | 20 | 80 | 100 | 3 |
| 4 | 15EC84 | Internship/Professional Practice | Industry Oriented | | 3 | 50 | 50 | 100 | 2 |
| 5 | 15ECP85 | Project Work | - | 6 | 3 | 100 | 100 | 200 | 6 |
| 6 | 15ECS86 | Seminar | - | 4 | - | 100 | - | 100 | 1 |
| TOTAL | | | 11 | 10 | 15 | 310 | 390 | 700 | 20 |

| Professional Elective -5 | |
|---------------------------------|----------------------------------|
| 15EC831 | Micro Electro Mechanical Systems |
| 15EC832 | Speech Processing |
| 15EC833 | Radar Engineering |
| 15EC834 | Machine Learning |
| 15TE835 | ADHOC Wireless Networks |

1. Internship / Professional Practice: To be carried between the (6th and 7th Semester) or (7th and 8th Semester) Vacation period.

B.E.: Electronics & Communication Engineering

VIII SEMESTER

| Sl. No | Course Code | Title | Teaching Department | Teaching Hours /Week | | Examination | | | | Credits |
|--------------|-------------|--|---------------------|---|--------------------|-------------------|------------|------------|-------------|-----------|
| | | | | Theory | Practical/ Drawing | Duration in hours | SEE Marks | CIE Marks | Total Marks | |
| 1 | 17EC81 | Wireless Cellular and LTE 4G Broadband | EC | 4 | - | 3 | 60 | 40 | 100 | 4 |
| 2 | 17EC82 | Fiber Optics & Networks | EC | 4 | - | 3 | 60 | 40 | 100 | 4 |
| 3 | 17EC83X | Professional Elective-5 | EC | 3 | - | 3 | 60 | 40 | 100 | 3 |
| 4 | 17EC84 | Internship/Professional Practice | EC | Industry Oriented | | 3 | 50 | 50 | 100 | 2 |
| 5 | 17ECP85 | Project Work | EC | - | 6 | 3 | 100 | 100 | 200 | 6 |
| 6 | 17ECS86 | Seminar | EC | - | 4 | - | - | 100 | 100 | 1 |
| TOTAL | | | | Theory: 11 hours Project and Seminar: 10 hours | | 15 | 330 | 370 | 700 | 20 |

| Professional Elective -5 | |
|--------------------------|----------------------------------|
| 17EC831 | Micro Electro Mechanical Systems |
| 17EC832 | Speech Processing |
| 17EC833 | Radar Engineering |
| 17EC834 | Machine learning |
| 17EC835 | Network and Cyber Security |

1. Internship/ Professional Practice: 4 Weeks internship to be completed between the (VI and VII semester vacation) and/or (VII and VIII semester vacation) period.

B.E.: Electronics & Communication Engineering

VII SEMESTER

| Sl. No | Course Code | Title | Teaching Department | Teaching Hours /Week | | Examination | | | | Credits |
|--------------|-------------|---|---------------------|---|--------------------|-------------------|------------|------------|-------------|-----------|
| | | | | Theory | Practical/ Drawing | Duration in hours | SEE Marks | CIE Marks | Total Marks | |
| 1 | 17EC71 | Microwave and Antennas | EC | 04 | | 03 | 60 | 40 | 100 | 4 |
| 2 | 17EC72 | Digital Image Processing | EC | 04 | | 03 | 60 | 40 | 100 | 4 |
| 3 | 17EC73 | Power Electronics | EC | 04 | | 03 | 60 | 40 | 100 | 4 |
| 4 | 17EC74X | Professional Elective-3 | EC | 03 | | 03 | 60 | 40 | 100 | 3 |
| 5 | 17EC75X | Professional Elective-4 | EC | 03 | | 03 | 60 | 40 | 100 | 3 |
| 6 | 17ECL76 | Advanced Communication Lab | EC | 01-Hour Instruction 02-Hour Practical | | 03 | 60 | 40 | 100 | 2 |
| 7 | 17ECL77 | VLSI Lab | EC | 01-Hour Instruction 02-Hour Practical | | 03 | 60 | 40 | 100 | 2 |
| 8 | 17ECP78 | Project Work Phase-I + Project work Seminar | EC | | 03 | | - | 100 | 100 | 2 |
| TOTAL | | | | Theory: 18 hours Practical and Project: 09 hours | | 21 | 420 | 380 | 800 | 24 |

| Professional Elective-3 | | Professional Elective-4 | |
|-------------------------|------------------------------|-------------------------|----------------------------------|
| 17EC741 | Multimedia Communication | 17EC751 | DSP Algorithms and Architecture |
| 17EC742 | Biomedical Signal Processing | 17EC752 | IOT and Wireless Sensor Networks |
| 17EC743 | Real Time Systems | 17EC753 | Pattern Recognition |
| 17EC744 | Cryptography | 17EC754 | Advanced Computer Architecture |
| 17EC745 | CAD for VLSI | 17EC755 | Satellite Communication |

1. Project Phase – I and Project Seminar: Comprises of Literature Survey, Problem identification, Objectives and Methodology. CIE marks shall be based on the report covering Literature Survey, Problem identification, Objectives and Methodology and Seminar presentation skill.

| VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI Scheme of Teaching and Examination 2018 – 19 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 – 19) | | | | | | | | | | | | | | | |
|--|------------------------|-------------------------------------|---------------------|---|-----------|--------------------|-----------|-------------|------------|-------------|-------------------|------------|------------|-------------|-----------|
| Programme: B.E.: Electronics & Communication Engineering | | | | | | | | | | | | | | | |
| VI SEMESTER | | | | | | | | | | | | | | | |
| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | | Examination | | | | Credits | | | |
| | | | | Theory | | Practical/ Drawing | | CIE Marks | SEE Marks | Total Marks | Duration in hours | CIE Marks | SEE Marks | Total Marks | Credits |
| | | | | L | T | P | | | | | | | | | |
| 1 | PCC 18EC61 | Digital Communication | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 | 40 | 60 | 100 | 4 |
| 2 | PCC 18EC62 | Embedded Systems | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 | 40 | 60 | 100 | 4 |
| 3 | PCC 18EC63 | Microwave and Antennas | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 | 40 | 60 | 100 | 4 |
| 4 | PEC 18XX64X | Professional Elective -I | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | 40 | 60 | 100 | 3 |
| 5 | OEC 18XX65X | Open Elective -A | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | 40 | 60 | 100 | 3 |
| 6 | PCC 18ECL66 | Embedded Systems Laboratory | | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 | 40 | 60 | 100 | 2 |
| 7 | PCC 18ECL67 | Communication Laboratory | | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 | 40 | 60 | 100 | 2 |
| 8 | MP 18ECMP68 | Mini-project | | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 | 40 | 60 | 100 | 2 |
| 9 | Internship | Internship | | To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | | | | | | | | | | | |
| TOTAL | | | | 15 | 10 | 6 | 24 | 320 | 480 | 800 | 24 | 320 | 480 | 800 | 24 |
| Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project. | | | | | | | | | | | | | | | |
| Professional Elective -I | | | | | | | | | | | | | | | |
| Course code under 18XX64X | | Course Title | | | | | | | | | | | | | |
| 18EC641 | | Operating System | | | | | | | | | | | | | |
| 18EC642 | | Artificial Neural Networks | | | | | | | | | | | | | |
| 18EC643 | | Data Structures using C++ | | | | | | | | | | | | | |
| 18EC644 | | Digital System Design Using Verilog | | | | | | | | | | | | | |
| 18EC645 | | Nanoelectronics | | | | | | | | | | | | | |
| 18EC646 | | Python Application Programming | | | | | | | | | | | | | |

| VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI | | | | | | | | | | | | | | | |
|---|------------------------|-------------------------------|---------------------------|---|----------|-----------------------|-------------------|-------------|-----------|-------------|----|---------|---|---|--|
| Scheme of Teaching and Examination 2018 – 19 | | | | | | | | | | | | | | | |
| Outcome Based Education (OBE) and Choice Based Credit System (CBCS) | | | | | | | | | | | | | | | |
| (Effective from the academic year 2018 – 19) | | | | | | | | | | | | | | | |
| Programme: B.E.: Electronics & Communication Engineering | | | | | | | | | | | | | | | |
| VII SEMESTER | | | | | | | | | | | | | | | |
| Sl. No | Course and Course code | Course Title | Teaching Department | Teaching Hours /Week | | | Duration in hours | Examination | | | | Credits | | | |
| | | | | Theory | Tutorial | Practical/ Drawing | | CIE Marks | SEE Marks | Total Marks | | | | | |
| | | | | | | | | | | | L | | T | P | |
| 1 | PCC | 18EC71 | Computer Networks | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | | | | |
| 2 | PCC | 18EC72 | VLSI Design | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | | | | |
| 3 | PEC | 18XX73X | Professional Elective - 2 | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | | | | |
| 4 | PEC | 18XX74X | Professional Elective - 3 | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | | | | |
| 5 | OEC | 18XX75X | Open Elective -B | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | | | | |
| 6 | PCC | 18ECL76 | Computer Networks Lab | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 | | | | |
| 7 | PCC | 18ECL77 | VLSI Laboratory | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 | | | | |
| 8 | Project | 18ECP78 | Project Work Phase - 1 | -- | -- | 2 | -- | 100 | -- | 100 | 1 | | | | |
| 9 | Internship | -- | Internship | (If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters) | | | | | | | | | | | |
| TOTAL | | | | 15 | 04 | 06 | 21 | 38 | 420 | 800 | 20 | | | | |
| Note: PCC: Professional core, PEC: Professional Elective. | | | | | | | | | | | | | | | |
| Professional Elective - 2 | | | | | | | | | | | | | | | |
| Course code under 18XX73X | | Course Title | | | | | | | | | | | | | |
| 18EC731 | | Real Time Systems | | | | | | | | | | | | | |
| 18EC732 | | Satellite Communication | | | | | | | | | | | | | |
| 18EC733 | | Digital Image Processing | | | | | | | | | | | | | |
| 18EC734 | | DSP Algorithms & Architecture | | | | | | | | | | | | | |

| VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI Scheme of Teaching and Examination 2018 – 19 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2018 – 19) | | | | | | | | | | | | | |
|--|------------------------|----------------------------------|-------------------------------------|--|----------------------|-----------|--------------------|-------------------|-------------|------------|-------------|-----------|--|
| Programme: B.E.: Electronics & Communication Engineering | | | | | | | | | | | | | |
| VIII SEMESTER | | | | | | | | | | | | | |
| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Duration in hours | Examination | | | Credits | |
| | | | | | Theory | Tutorial | Practical/ Drawing | | CIE Marks | SEE Marks | Total Marks | | |
| 1 | PCC | 18EC81 | Wireless and Cellular Communication | | L | T | P | 03 | 40 | 60 | 100 | 3 | |
| 2 | PEC | 18XX82X | Professional Elective - 4 | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 | |
| 3 | Project | 18ECP83 | Project Work Phase - 2 | | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 | |
| 4 | Seminar | 18ECS84 | Technical Seminar | | -- | -- | 2 | 03 | 100 | -- | 100 | 1 | |
| 5 | Internship | 18ECI85 | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 | |
| TOTAL | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 | |
| Note: PCC: Professional Core, PEC: Professional Elective. | | | | | | | | | | | | | |
| Professional Elective - 4 | | | | | | | | | | | | | |
| Course code under 18XX82X | | Course Title | | | | | | | | | | | |
| 18EC821 | | Network Security | | | | | | | | | | | |
| 18EC822 | | Micro Electro Mechanical Systems | | | | | | | | | | | |
| 18EC823 | | Radar Engineering | | | | | | | | | | | |
| 18EC824 | | Optical Communication Networks | | | | | | | | | | | |
| 18EC825 | | Biomedical Signal Processing | | | | | | | | | | | |

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|-----------|--------------------------------------|---|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18 EE61 | Control Systems | EEE | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 2 | PCC | 18 EE62 | Power System Analysis – 1 | EEE | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 3 | PCC | 18 EE63 | Digital Signal Processing | EEE | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 4 | PEC | 18 EE64X | Professional Elective -I | EEE | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18 EE65X | Open Elective -A | EEE | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18 EEL66 | Control System Laboratory | EEE | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | PCC | 18 EEL67 | Digital Signal Processing Laboratory | EEE | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 8 | MP | 18 EEMP68 | Mini-project | | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 |
| 9 | Internship | -- | Internship | To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | | | | | | | | |
| TOTAL | | | | | 15 | 10 | 06 | 24 | 320 | 480 | 800 | 24 |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

| Course code under 18XX64X | Course Title |
|---------------------------|---------------------------------------|
| 18 EE641 | Introduction to Nuclear Power |
| 18 EE642 | Electrical Engineering Materials |
| 18 EE643 | Computer Aided Electrical Drawing |
| 18 EE644 | Embedded System |
| 18 EE645 | Object Oriented Programming using C++ |
| 18EE646 | Electric Vehicles Technologies |
| 18EE647 | Sensors and Transducers |

Open Elective -A

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

The candidate has studied the same course during the previous semesters of the programme.

The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.

A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:

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.

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 senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of 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.

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

The CIE marks awarded for the Mini-project, shall be based on the evaluation of 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.

SEE for Mini-project:

(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-

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Scheme of Teaching and Examination 2018 – 19
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VIII SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------------|------------------------|---------|------------------------------------|--|----------------------|-----------|--------------------|-------------------|------------|------------|-------------|-----------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18EE81 | Power System Operation and Control | EEE | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18EE82X | Professional Elective - 4 | EEE | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18EEP83 | Project Work Phase - 2 | | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18EES84 | Technical Seminar | | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | Internship | 18EEI85 | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

| Course code under 18XX82X | Course Title |
|---------------------------|--|
| 18EE821 | FACTs and HVDC Transmission |
| 18EE822 | Electrical Estimation and Costing |
| 18EE823 | Big Data Analytics in Power Systems |
| 18EE824 | Power System Planning |
| 18EE825 | Electrical Power Quality |

Project Work

CIE procedure for Project Work Phase - 2:

(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) 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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card. Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

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Scheme of Teaching and Examination 2018 – 19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|----------|--|---------------------|--|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | | |
| 1 | PCC | 18IS61 | File Structures | CS / IS | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 2 | PCC | 18IS62 | Software Testing | CS / IS | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 3 | PCC | 18CS63 | Web Technology and its applications | CS / IS | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 4 | PEC | 18CS64X | Professional Elective -I | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18CS65X | Open Elective –A | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18ISL66 | Software Testing Laboratory | CS / IS | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | PCC | 18ISL67 | File Structures Laboratory with mini project | CS / IS | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 8 | MP | 18ISMP68 | Mobile Application Development | CS / IS | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 |
| 9 | INT | | -- | Internship | (To be carried out during the intervening vacations of VI and VII semesters) | | | | -- | -- | -- | -- |
| TOTAL | | | | | 15 | 10 | 06 | 24 | 320 | 480 | 800 | 24 |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project, INT: Internship.

Professional Elective -I

| Course code under 18XX64X | Course Title |
|--|--|
| 18CS641 | Data Mining and Data Warehousing |
| 18CS642 | Object Oriented Modelling and Design |
| 18CS643 | Cloud Computing and its Applications |
| 18CS644 | Advanced JAVA and J2EE |
| 18IS645 | Information Management System |
| Open Elective –A (Not for CSE / ISE Programs) | |
| 18CS651 | Mobile Application Development |
| 18CS652 | Introduction to Data Structures and Algorithms |
| 18CS653 | Programming in JAVA |
| 18CS654 | Introduction to Operating System |

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS65X).

Selection of an open elective is not allowed provided,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Adviser/Mentor.

Mini-project work: 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.

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 senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the Mini-project work, shall be based on the evaluation of 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.

(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college. The CIE marks awarded for the Mini-project, shall be based on the evaluation of 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.

SEE for Mini-project:

(i) **Single discipline:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: All the students admitted to III year of BE/B.Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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Scheme of Teaching and Examination 2018 – 19
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VIII SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|---------|---------------------------|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18CS81 | Internet of Things | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18CS82X | Professional Elective – 4 | CS / IS | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18CSP83 | Project Work Phase – 2 | CS / IS | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18CSS84 | Technical Seminar | CS / IS | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | INT | 18CSI85 | Internship | (Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective, OEC: Open Elective, INT: Internship.

Professional Electives – 4

| Course code under 18CS82X | Course Title |
|---------------------------|--|
| 18CS821 | Mobile Computing |
| 18CS822 | Storage Area Networks |
| 18CS823 | NoSQL Database |
| 18CS824 | Multicore Architecture and Programming |

Project Work CIE procedure for Project Work Phase - 2:

(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) 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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belong to.

Internship: Those, who have not pursued /completed the internship shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card. Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. In MECHATRONICS
 Scheme of Teaching and Examination 2018 – 19
 Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
 (Effective from the academic year 2018 – 19)

VI SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | Credits | |
|--------|------------------------|-----------|--------------------------------|---|----------------------|----------|-----------|-------------------|-----------|-----------|---------|-------------|
| | | | | | Theory | Tutorial | Practical | Duration in hours | CIE Marks | SEE Marks | | Total Marks |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18 MT61 | PLC & SCADA | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 2 | PCC | 18 MT62 | Power Electronics | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 3 | PCC | 18 MT63 | Computer Aided Machine Drawing | | 1 | 0 | 4 | 03 | 40 | 60 | 100 | 4 |
| 4 | PEC | 18 MT64X | Professional Elective -I | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18XX65X | Open Elective –A | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18 MTL66 | PLC and SCADA- Laboratory | | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | PCC | 18 MTL67 | Power electronics - Laboratory | | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 8 | MP | 18MTM,P68 | Mini-project | | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 |
| 9 | Internship | -- | Internship | To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | | | | | | | | |
| TOTAL | | | | | 13 | 08 | 10 | 24 | 320 | 480 | 800 | 24 |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

| Course code under 18MT64X | Course Title |
|---------------------------|-----------------------------------|
| 18 MT641 | Modeling And Simulation |
| 18 MT642 | Rapid Prototyping |
| 18 MT643 | Artificial neural network |
| 18 MT644 | Satellite Communication |
| 18 MT645 | Computer Integrated Manufacturing |

Open Elective –A

18 MT651 Robotics and Automation, 18 MT652 Process Instrumentation

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the program.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the program

Registration to electives shall be documented under the guidance of Program Coordinator/ Advisor/Mentor.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. In MECHATRONICS

Scheme of Teaching and Examination 2018 – 19

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

(Effective from the academic year 2018 – 19)

VIII SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|---------|--|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | | |
| 1 | PCC | 18MT81 | Automotive Electronics & Hybrid Vehicles | | 4 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18MT82X | Professional Elective - 4 | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18MTP83 | Project Work | | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18MTS84 | Technical Seminar | | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | Internship | 18MTI85 | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective.

Professional Electives - 4

| Course code under 18XX82X | Course Title |
|---------------------------|--------------------------------|
| 18 MT821 | Operation Research. |
| 18 MT822 | Communication system |
| 18 MT823 | Digital Control System |
| 18 MT824 | Management Information Systems |
| 18 MT825 | Radar Engineering |

Project Work

CIE procedure for Project Work Phase - 2:

(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) 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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(i) Single discipline: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

| VI SEMESTER | | | | | | | | | | | | |
|-------------|------------------------|----------|---|---|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | L | T | P | | | | | |
| 1 | PCC | 18ME61 | Finite Element Methods | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 2 | PCC | 18ME62 | Design of Machine Elements II | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 3 | PCC | 18ME63 | Heat Transfer | | 3 | 2 | -- | 03 | 40 | 60 | 100 | 4 |
| 4 | PEC | 18ME64X | Professional Elective -I | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 5 | OEC | 18ME65X | Open Elective -A | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 6 | PCC | 18MEL66 | Computer Aided Modelling and Analysis Lab | | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 7 | PCC | 18MEL67 | Heat Transfer Lab | | -- | 2 | 2 | 03 | 40 | 60 | 100 | 2 |
| 8 | MP | 18MEMP68 | Mini-project | | -- | -- | 2 | 03 | 40 | 60 | 100 | 2 |
| 9 | Internship | -- | Internship | To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters. | | | | | | | | |
| TOTAL | | | | | 15 | 10 | 06 | 24 | 320 | 480 | 800 | 24 |

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -I

| Course code under 18XX64X | Course Title | Course code under 18XX64X | Course Title |
|---------------------------|------------------------------------|---------------------------|----------------------------------|
| 18ME641 | Non-Traditional Machining | 18ME644 | Vibrations and Noise Engineering |
| 18ME642 | Refrigeration and Air conditioning | 18ME645 | Composite Materials Technology |
| 18ME643 | Theory of Elasticity | 18ME646 | Entrepreneurship Development |

Open Elective -A

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:

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.

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 senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of 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.

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

The CIE marks awarded for the Mini-project, shall be based on the evaluation of 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.

SEE for Mini-project:

(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

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VIII SEMESTER

| Sl. No | Course and Course code | | Course Title | Teaching Department | Teaching Hours /Week | | | Examination | | | | Credits |
|--------|------------------------|---------|---------------------------|--|----------------------|----------|--------------------|-------------------|-----------|-----------|-------------|---------|
| | | | | | Theory Lecture | Tutorial | Practical/ Drawing | Duration in hours | CIE Marks | SEE Marks | Total Marks | |
| | | | | | | | | | | | | |
| 1 | PCC | 18ME81 | Energy Engineering | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 2 | PEC | 18ME82X | Professional Elective - 4 | | 3 | -- | -- | 03 | 40 | 60 | 100 | 3 |
| 3 | Project | 18MEP83 | Project Work Phase - 2 | | -- | -- | 2 | 03 | 40 | 60 | 100 | 8 |
| 4 | Seminar | 18MES84 | Technical Seminar | | -- | -- | 2 | 03 | 100 | -- | 100 | 1 |
| 5 | Internship | 18XXI85 | Internship | Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.) | | | | 03 | 40 | 60 | 100 | 3 |
| TOTAL | | | | | 06 | -- | 04 | 15 | 260 | 240 | 500 | 18 |

Note: PCC: Professional Core, PEC: Professional Elective.

| |
|-----------------------------------|
| |
| Professional Electives - 4 |

| Course code under 18XX82X | Course Title | Course code under 18XX82X | Course Title |
|----------------------------------|---|----------------------------------|-------------------------------|
| 18ME821 | CNC Machine Tools | 18ME824 | Automobile Engineering |
| 18ME822 | Tribology | 18ME825 | Tool Design |
| 18ME823 | Non-Destructive Testing and Evaluation | 18ME826 | Fracture Mechanics |

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| |
|---------------------|
| Project Work |
|---------------------|

CIE procedure for Project Work Phase - 2:
(i) 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 phase -2, shall be based on the evaluation of project work phase -2 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.

(ii) **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 phase -2, shall be based on the evaluation of project work phase -2 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 for Project Work Phase - 2:

(ii) **Single discipline:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

(ii) **Interdisciplinary:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

Internship: Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

AICTE activity Points: In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

| III Semester (Core Specialization) | | | | | | | | | |
|--|--|---|-----------------|-------------------------|---------------------|-------------------------------|-----------|------------|-----------|
| Subject Code | | | Course Category | Teaching hours per week | | Duration of Examination hours | Marks for | | Credits |
| Marketing | Finance | Human Resource | | Lecture | Practical Component | | CIE | SEE | |
| 18MBAMM301 Consumer Behavior | 18MBAFM301 Banking and Financial Services | 18MBAHR301 Recruitment & Selection | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM302 Retail Management | 18MBAFM302 Investment Management | 18MBAHR302 HR Analytics | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM303 Services Marketing | 18MBAFM303 Direct Taxation | 18MBAHR303 Compensation & Reward System | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM304 Marketing Research & Analytics | 18MBAFM304 Advanced Financial Management | 18MBAHR304 Learning & Development | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM305 Business Marketing | 18MBAFM305 Cost Management | 18MBAHR305 Industrial Relations & Legislations | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM306 Supply Chain Management | 18MBAFM306 Project Appraisal Planning & Control | 18MBAHR306 Conflict & Negotiation Management | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAOS307 Organization Study | | | Core | 0 | 8 | 8 | -- | 40 | 4 |
| Industrial Visit | | | Core | -- | -- | -- | -- | -- | -- |
| Total | | | | 18 | 20 | 38 | -- | 280 | 28 |

Note:

- Each Course has a theory component of 3hrs (3credits) and a Practical component of 2hrs (1credit). The Time-Table allotment for each course should be (3+2) = 5hours.
- For the practical component, it is mandatory to maintain a practical record.
- 20% of marks should be allocated for application oriented questions in the SEE Question Paper, based on practical component.
- Organization Study (Four Weeks) will be carried out by students after second semester during vacation and the report submitted by the students will be assessed internally during the third semester.
- One Industrial Visit per Semester is Mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
- Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

| Rubrics for Organization Study | | | Rubrics for Viva voce Examination | | |
|---|------------|---|---|------------|-----------|
| Particulars | Marks | Aspects | Particulars | Marks | Marks |
| CIE Assessment by the Guide- Interaction with the student | 20 | Communication skill | CIE Assessment by the Guide- Interaction with the student | 20 | 5 |
| Report Evaluation by the Guide | 20 | Understanding the Industry | Report Evaluation by the Guide | 20 | 5 |
| Viva-Voce Examination to be conducted by the Guide and an External examiner from the Industry/Institute | 60 | Understanding the Corporate Functions/Company profile | Viva-Voce Examination to be conducted by the Guide and an External examiner from the Industry/Institute | 60 | 10 |
| Total | 100 | Mckensy's 7S framework and Porter's Five Force Model | Total | 100 | 10 |
| | | SWOT analysis | | | 10 |
| | | Financial statement analysis | | | 10 |
| | | Learning experience | | | 5 |
| | | Overall presentation | | | 5 |
| | | Total | | | 60 |

III Semester (Dual Specialization)

| Subject Code | | | Course Category | Teaching hours per week | | Duration of Examination hours | Marks for | | Credits |
|--|--|--|-----------------|-------------------------|---------------------|-------------------------------|-----------|------------|-----------|
| Marketing & Finance | Finance & HR | HR & Marketing | | Lecture | Practical Component | | CIE | SEE | |
| 18MBAMM301 Consumer Behavior | 18MBAFM301 Banking and Financial Services | 18MBAHR301 Recruitment & Selection | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM302 Retail Management | 18MBAFM302 Investment Management | 18MBAHR302 HR Analytics | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM303 Services Marketing | 18MBAFM303 Direct Taxation | 18MBAHR303 Compensation & Reward System | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAMM301 Banking and Financial Services | 18MBAHR301 Recruitment & Selection | 18MBAMM301 Consumer Behavior | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAFM302 Investment Management | 18MBAHR302 HR Analytics | 18MBAMM302 Retail Management | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAFM303 Direct Taxation | 18MBAHR303 Compensation & Reward System | 18MBAMM303 Services Marketing | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAHR301 Recruitment & Selection | 18MBAMM301 Consumer Behavior | 18MBAHR301 Recruitment & Selection | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAHR302 HR Analytics | 18MBAMM302 Retail Management | 18MBAHR302 HR Analytics | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAHR303 Compensation & Reward System | 18MBAMM303 Services Marketing | 18MBAHR303 Compensation & Reward System | Elective | 3 | 2 | 5 | 40 | 60 | 4 |
| 18MBAOS307 Organization study | | | Core | -- | 8 | 8 | -- | 40 | 4 |
| Industrial Visit | | | Core | -- | -- | -- | -- | -- | -- |
| Total | | | | 18 | 20 | 38 | -- | 280 | 28 |

Note:

- Each Course has a theory component of 3hrs (3credits) and a Practical component of 2hrs (1credit). The Time-Table allotment for each course should be (3+2) = 5hours.
- For the practical component, it is mandatory to maintain a practical record.
- 20% of marks should be allocated for application oriented questions in the SEE Question Paper, based on practical component.
- Organization Study (Four Weeks) will be carried out by students after second semester during vacation and the report submitted by the students will be assessed internally during the third semester.
- One Industrial Visit per Semester is Mandatory. The Department shall insist on report submission by each student and shall maintain this as a documentary proof. The format of the report shall be prescribed by the department.
- Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.

| Rubrics for Organization Study | | | Rubrics for Viva voce Examination | | |
|---|------------|---|---|------------|-----------|
| Particulars | Marks | Aspects | Particulars | Marks | Marks |
| CIE Assessment by the Guide- Interaction with the student | 20 | Communication skill | CIE Assessment by the Guide- Interaction with the student | 20 | 5 |
| Report Evaluation by the Guide | 20 | Understanding the Industry | Report Evaluation by the Guide | 20 | 5 |
| Viva-Voce Examination to be conducted by the Guide and an External examiner from the Industry/Institute | 60 | Understanding the Corporate Functions/Company profile | Viva-Voce Examination to be conducted by the Guide and an External examiner from the Industry/Institute | 60 | 10 |
| Total | 100 | Mckensy's 7S framework and Porter's Five Force Model | Total | 100 | 10 |
| | | SWOT analysis | | | 10 |
| | | Financial statement analysis | | | 10 |
| | | Learning experience | | | 5 |
| | | Overall presentation | | | 5 |
| | | Total | | | 60 |

| IV Semester (Core Specialization) | | | | | | | | | | | |
|---|---|---|-----------------|-------------------------|---------------------|-----------|-------------------------------|------------|------------|------------|-----------|
| Subject Code | | | Course Category | Teaching hours per week | | | Duration of Examination hours | Marks for | | Credits | |
| Marketing | Finance | Human Resource | | Lecture | Practical Component | Total | | CIE | SEE | | |
| 18MBAMM401 Sales Management | 18MBAFM401 Mergers, Acquisitions & Corporate Restructuring | 18MBAHR401 Public Relations | Elective | 3 | -- | 3 | 3 | 40 | 60 | 3 | |
| 18MBAMM402 Integrated Marketing Communication | 18MBAFM402 Risk Management and Insurance | 18MBAHR402 Organizational Leadership | Elective | 3 | -- | 3 | 3 | 40 | 60 | 3 | |
| 18MBAMM403 Digital and Social Media Marketing | 18MBAFM403 Indirect Taxation | 18MBAHR403 International Human Resource Management | Elective | 3 | -- | 3 | 3 | 40 | 60 | 3 | |
| 18MBAMM404 Strategic Brand Management | 18MBAFM404 International Financial Management | 18MBAHR404 Organization Change and Development | Elective | 3 | -- | 3 | 3 | 40 | 60 | 3 | |
| 18MBAMM405 Rural Marketing | 18MBAFM405 Financial Derivatives | 18MBAHR405 Strategic Talent Management | Elective | 3 | -- | 3 | 3 | 40 | 60 | 3 | |
| 18MBAMM406 International Marketing Management | 18MBAFM406 Corporate Valuation | 18MBAHR406 Personal Growth & Interpersonal Effectiveness | Elective | 3 | -- | 3 | 3 | 40 | 60 | 3 | |
| 18MBAPR407 Project Work | | | Core | 0 | 12 | 12 | -- | 40 | 60 | 100 | 6 |
| Industrial Visit | | | Core | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Total | 18 | 12 | 30 | -- | 280 | 420 | 700 | 24 |
| | | | | | | | | | | | |
| Note: | | | | | | | | | | | |
| 1. Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated. | | | | | | | | | | | |
| 2. Project work(Six Weeks) will be carried out after third semester and shall be evaluated during fourth semester. | | | | | | | | | | | |

| IV Semester (Dual Specialization) | | | | | | | | | | | |
|---|---|---|-----------------|-------------------------|---------------------|-----------|-------------------------------|------------|------------|------------|-----------|
| Subject Code | | | Course Category | Teaching hours per week | | | Duration of Examination hours | Marks for | | Credits | |
| Marketing & Finance | Finance & HR | HR & Marketing | | Lecture | Practical Component | Total | | CIE | SEE | | |
| 18MBAMM401 Sales Management | 18MBAFM401 Mergers, Acquisitions & Corporate Restructuring | 18MBAHR401 Public Relations | Elective | 3 | -- | 3 | 3 | 40 | 60 | 100 | 3 |
| 18MBAMM402 Integrated Marketing Communication | 18MBAFM402 Risk Management and Insurance | 18MBAHR402 Organizational Leadership | Elective | 3 | -- | 3 | 3 | 40 | 60 | 100 | 3 |
| 18MBAMM403 Digital and Social Media Marketing | 18MBAFM403 Indirect Taxation | 18MBAHR403 International Human Resource Management | Elective | 3 | -- | 3 | 3 | 40 | 60 | 100 | 3 |
| 18MBAFM401 Mergers, Acquisitions & Corporate Restructuring | 18MBAHR401 Public Relations | 18MBAMM401 Sales Management | Elective | 3 | -- | 3 | 3 | 40 | 60 | 100 | 3 |
| 18MBAFM402 Risk Management and Insurance | 18MBAHR402 Integrated Marketing Communication | 18MBAMM402 Digital and Social Media Marketing | Elective | 3 | -- | 3 | 3 | 40 | 60 | 100 | 3 |
| 18MBAFM403 Indirect Taxation | 18MBAHR403 International Human Resource Management | 18MBAMM403 Digital and Social Media Marketing | Elective | 3 | -- | 3 | 3 | 40 | 60 | 100 | 3 |
| 18MBAPR407 Project Work | | | Core | -- | 12 | 12 | -- | 40 | 60 | 100 | 6 |
| Industrial Visit | | | Core | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Total | 18 | 12 | 30 | - | 280 | 420 | 700 | 24 |

Note:
1. Course instructors are free to set the Course outcome and map with the Programme Outcome, subsequently attainment level may be calculated.
2. Project work(Six Weeks) will be carried out after third semester and shall be evaluated during fourth semester.