



**MIT ART, DESIGN AND TECHNOLOGY  
UNIVERSITY, PUNE**

# **MIT SCHOOL OF ENGINEERING, PUNE**

## **STRUCTURE AND SYLLABUS**

FOR

## **B. Tech. Aerospace Engineering**

**UNDER FACULTY OF TECHNOLOGY**

**(w.e.f. 2018-2019)**

**Department of Aerospace Engineering**

### Semester III

| Course Code  | Course Name   | Hours/week |          |           |           | Maximum Marks |            |            |
|--------------|---|------------|----------|-----------|-----------|---------------|------------|------------|
|              |   | Lecture    | Tutorial | Practical | Credits   | CA            | FE         | Total      |
| 18BTAE301    | Machines & Mechanisms                               | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE302    | Introduction to Aerospace Engineering               | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE303    | Fluid Mechanics                                     | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTMT304    | Linear Differential Equations and Complex Variables | 3          | 1        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE305    | Mechanics of Solids                                 | 3          | 0        | 2         | 4         | 40            | 60         | 100        |
| 18BTAE311    | Fluid Mechanics Lab                                 | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE312    | Machines & Mechanisms Lab                           | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE320    | Machine Drawing                                     | 1          | 2        | 0         | 3         | 100           | --         | 100        |
| <b>Total</b> |   | <b>16</b>  | <b>3</b> | <b>6</b>  | <b>22</b> | <b>380</b>    | <b>420</b> | <b>800</b> |

### Semester IV

| Course Code  | Course Name                       | Hours/week |          |           |           | Maximum Marks |            |            |
|--------------|-----------------------------------|------------|----------|-----------|-----------|---------------|------------|------------|
|              |                                   | Lecture    | Tutorial | Practical | Credits   | CA            | FE         | Total      |
| 18BTAE401    | Numerical Methods                 | 3          | 0        | 2         | 4         | 40            | 60         | 100        |
| 18BTAE402    | Thermodynamics of Propulsion      | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE403    | Manufacturing Technology          | 3          | 0        | 2         | 4         | 40            | 60         | 100        |
| 18BTAE404    | Aerodynamics                      | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE405    | Electronics & Instrumentation     | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE411    | Thermodynamics of propulsion Lab  | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE412    | Aerodynamics Lab                  | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE413    | Electronics & Instrumentation Lab | 0          | 0        | 4         | 2         | 100           | --         | 100        |
| <b>Total</b> |                                   | <b>16</b>  | <b>0</b> | <b>12</b> | <b>22</b> | <b>380</b>    | <b>420</b> | <b>800</b> |

**CA = Continuous Assessment, FE= Final Examination,**

**\*\*Final Lab exam will be conducted with viva-voce of the respective practical (50 exam +10 viva = 60)**

**Coding for course/ subject: 17AE101, Where; 17 = Year of BOS, AE = Branch Code, 1= Semester No., 01 to N = Sequence No of Subject. For, SE to BE& also PG follow the above scheme of regulation.**

### SEMESTER-V

| Course Code  | Course Name               | Hours/week |          |           |           | Maximum Marks |            |            |
|--------------|---------------------------|------------|----------|-----------|-----------|---------------|------------|------------|
|              |                           | Lecture    | Tutorial | Practical | Credits   | CA            | FE         | Total      |
| 18BTAE501    | Aircraft Flight Mechanics | 3          | 0        | 2         | 4         | 40            | 60         | 100        |
| 18BTAE502    | Aircraft Structures-I     | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE503    | Aircraft Propulsion       | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE504    | Gas Dynamics              | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE505    | Control Theory            | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE511    | Aircraft Structures Lab   | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE512    | Aircraft Propulsion Lab   | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE513    | Control Theory Lab        | 0          | 0        | 2         | 1         | 100           | --         | 100        |
| <b>Total</b> |                           | <b>19</b>  | <b>0</b> | <b>8</b>  | <b>23</b> | <b>380</b>    | <b>420</b> | <b>800</b> |

### Semester VI

| Course Code  | Course Name                            | Hours/week |          |           |           | Maximum Marks |            |            |
|--------------|--|------------|----------|-----------|-----------|---------------|------------|------------|
|              |  | Lecture    | Tutorial | Practical | Credits   | CA            | FE         | Total      |
| 18BTAE601    | Aircraft Structures -II                | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE602    | Avionics                               | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE603    | Heat Transfer                          | 4          | 0        | 0         | 4         | 40            | 60         | 100        |
| 18BTAE604    | Rocket Propulsion                      | 3          | 0        | 2         | 4         | 40            | 60         | 100        |
| 18BTAE 605   | Economics and Management for Engineers | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE611    | Avionics Lab                           | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE612    | Computer Aided Drawing and Design Lab  | 0          | 0        | 4         | 2         | 40            | 60**       | 100        |
| 18BTAE620    | Mini Project                           | 0          | 0        | 4         | 2         | 100           | --         | 100        |
| <b>Total</b> |  | <b>17</b>  | <b>0</b> | <b>12</b> | <b>23</b> | <b>380</b>    | <b>420</b> | <b>800</b> |

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**Coding for course/ subject: 17AE101, Where; 17 = Year of BOS, AE = Branch Code, 1= Semester No.,**

**01 to N = Sequence No of Subject. For, SE to BE& also PG follow the above scheme of regulation.**

### SEMESTER-VII

| Course Code  | Course Name                      | Hours/week |          |           |           | Maximum Marks |            |            |
|--------------|----------------------------------|------------|----------|-----------|-----------|---------------|------------|------------|
|              |                                  | Lecture    | Tutorial | Practical | Credits   | CA            | FE         | Total      |
| 18BTAE701    | Introduction to Space Technology | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE702    | Vibrations & Aeroelasticity      | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 1BTAE703     | Aircraft Design                  | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE____   | Elective-I                       | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE____   | Elective-II                      | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE711    | Aircraft Design Lab              | 0          | 0        | 4         | 2         | 40            | 60**       | 100        |
| 18BTAE712    | Vibrations & Aeroelasticity Lab  | 0          | 0        | 2         | 1         | 40            | 60**       | 100        |
| 18BTAE720    | Project Phase-I                  | 0          | 0        | 6         | 3         | 100           | --         | 100        |
| <b>Total</b> |                                  | <b>15</b>  | <b>0</b> | <b>12</b> | <b>21</b> | <b>380</b>    | <b>420</b> | <b>800</b> |

### SEMESTER-VIII

| Course Code  | Course Name                  | Hours/week |          |           |           | Maximum Marks |            |            |
|--------------|------------------------------|------------|----------|-----------|-----------|---------------|------------|------------|
|              |                              | Lecture    | Tutorial | Practical | Credits   | CA            | FE         | Total      |
| 18BTAE____   | Elective-III (Online Course) | 3          | 0        | 0         | 3         | 40            | 60         | 100        |
| 18BTAE820    | Project Phase-II             | 0          | 0        | 24        | 12        | 100           | 200        | 300        |
| <b>Total</b> |                              | <b>3</b>   | <b>0</b> | <b>24</b> | <b>15</b> | <b>180</b>    | <b>320</b> | <b>500</b> |

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**Coding for course/ subject: 17AE101, Where; 17 = Year of BOS, AE = Branch Code, 1= Semester No.,**

**01 to N = Sequence No of Subject. For, SE to BE& also PG follow the above scheme of regulation.**

### List of Electives

| Elective     | Course Name |  |
|--------------|-------------|--|
| Elective-I   | 18BTAE001   | TQM & Reliability Engineering                          |
|              | 18BTAE002   | Introduction to Composite Materials & Structures       |
|              | 18BTAE003   | Operations Research                                    |
|              | 18BTAE004   | Aircraft Systems                                       |
| Elective-II  | 18BTAE005   | Computational Fluid Dynamics                           |
|              | 18BTAE006   | Aircraft Controls                                      |
|              | 18BTAE007   | Optimization   |
|              | 18BTAE008   | Introduction to Helicopter                             |
| Elective-III | 18BTAE009   | Aircraft Engine and Instrument Systems                 |
|              | 18BTAE010   | Finite Element Analysis                                |
|              | 18BTAE011   | Cryogenics   |
|              | 18BTAE012   | Spacecraft Technology                                  |
| Elective-IV  | 18BTAE013   | Airframe Maintenance and Repair                        |
|              | 18BTAE014   | Aircraft Maintenance Management                        |
|              | 18BTAE015   | Supply Chain Management                                |
|              |             | Any one online course should be selected through NPTEL |