B.Tech. Programme

Aerospace Engineering

Curriculum

for 2015 admissions onwards

Curriculum

General Information

Code Numbering:
Each course is assigned an 8-character Code number. The first two digits indicate the year of curriculum revision. The next three letters indicate the Department offering the course. The last three digits are unique to the course—the first digit indicates the level of the course (100, 200, 300, 400 etc.); the second digit indicates the type of the course, viz. 0, 1 and 2 indicate the core courses; 3, 4, 5, 6 and 7 indicate the Elective courses; 8 indicates the Lab. or practical-based courses and 9 indicates Projects.

Abbreviations used in the Curriculum:
Cat. - Category;
L - Lecture;
T - Tutorial;
P - Practicals;
Cr - Credits;
ES - Exam Slot;
ENGG - Engineering Sciences (including General, Core and Electives);
HUM - Humanities (including Languages and others);
SCI - Basic Sciences (including Mathematics);
PRJ - Project Work (including Seminars).

Departments
AES - Aerospace Engineering;
CHE - Chemical Engineering;
CHY - Chemistry;
CSE - Computer Science and Engineering;
CUL - Cultural Education;
CVL - Civil Engineering;
ECE - Electronics and Communication Engineering;
EEE - Electrical and Electronics Engineering;
EIE - Electronics and Instrumentation Engineering;
HUM - Humanities and Languages;
MAT - Mathematics;
MEC - Mechanical Engineering;
PHY - Physics;
SWK - Social Work.

Category-wise distribution of credits for B.Tech. Aerospace Engineering Programme:
Humanities - 22 credits; Basic Sciences - 30 credits;
Engineering Sciences - 100 credits; Project Work - 2 credits. Total = 164 Credits
## CURRICULUM
### B. Tech - Aerospace Engg. 2015 admissions onwards

### Semester I

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<thead>
<tr>
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* ‘Hands-on’ Project-based Lab.
### CURRICULUM

**B. Tech - Aerospace Engg. 2015 admissions onwards**

#### Semester V

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**Total 22 [+3]**

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**Total 16**

* 'Hands-on' Project-based Lab.

* A maximum of One Elective course can be chosen from the Electives prescribed for other Branches or from under Science Electives.

** Students undertaking and registering for a Live-in-Lab project, can be exempted from registering for an Elective course in the higher semester.
## ELECTIVES

### Elective I
- 15AES332 Fundamentals of Heat Transfer
- 15AES352 Vibration Analysis
- 15AES372 Manufacturing Processes

### Elective II
- 15AES342 Experimental Aerodynamics
- 15AES353 Composite Materials and Mechanics
- 15AES373 Advanced Avionics

### Elective III
- 15AES432 Air Breathing Engines
- 15AES452 Engineering Fracture Mechanics
- 15AES462 Helicopter Theory

### Elective VI
- 15AES430 Rocket and Spacecraft Propulsion (O)
- 15AES442 Hypersonic Flow Theory
- 15AES453 Aero-Elasticity
- 15AES454 Advanced Composite Structures
- 15AES470 State Space Techniques (O)

### Elective V
- 15AES440 Turbulent Flows (O)
- 15AES460 Space Flight Mechanics (O)
- 15AES471 Multidisciplinary Design Optimization (O)

### Elective VI
- 15AES441 Advanced Computational Fluid Dynamics (O)
- 15AES450 Surface Engineering, Coating and Joining Technologies (O)
- 15AES461 Principles of Airport Management (O)

(O) indicates Open electives which can be taken by students of other branches.

## SCIENCE ELECTIVES (300 3)

- 15CHY231 Advanced Polymer Chemistry
- 15CHY232 Biomaterials Science
- 15CHY233 Catalytic Chemistry
- 15CHY234 Chemistry of Advanced Materials
- 15CHY235 Chemistry of Engineering Materials
- 15CHY236 Chemistry of Nanomaterials
- 15CHY237 Chemistry of Toxicology
- 15CHY238 Colloidal and Interfacial Chemistry
- 15CHY239 Computational Chemistry and Molecular Modelling
- 15CHY241 Electrochemical Energy Systems and Processes
- 15CHY242 Environmental Chemistry
- 15CHY243 Fuels and Combustion
- 15CHY244 Green Chemistry and Technology
- 15CHY245 Instrumental Methods of Analysis
- 15CHY246 Medicinal Organic Chemistry
- 15CHY247 Modern Polymer Composites
- 15CHY248 Organic Reaction Mechanisms
- 15CHY249 Organic Synthesis and Stereochemistry
- 15CHY250 Polymer Materials and Properties
- 15CHY251 Polymers for Electronics
- 15CHY252 Solid State Chemistry
- 15CHY331 Batteries and Fuel Cells
- 15CHY332 Corrosion Science
- 15PHY230 Advanced Classical Dynamics
- 15PHY233 Biophysics and Biomaterials
- 15PHY234 Introduction to Computational Physics
- 15PHY238 Electrical Engineering Materials
- 15PHY239 Electromagnetic Fields and Waves
- 15PHY240 Electronic Material Sciences
- 15PHY241 Lasers in Material Processing
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**HUMANITIES ELECTIVES**

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