

## **Air University Islamabad**

### **Department with degree courses**

#### **directly related to environmental sustainability**

Air University has strong ambitions to be a catalyst for sustainable development. We are actively involved in promoting sustainable development in collaboration with local, national, and international networks and organizations. Air University not only conducts extensive and diverse research and education related to sustainability issues, but we are also actively involved in promoting sustainable development in collaboration with local, national, and international networks and organizations.

Rapid changes in the world as a result of global warming, as well as associated environmental and socioeconomic issues, create severe concerns for the welfare of current and future generations. We have introduced numerous courses in Environment, Sustainability, and Climate for our students to address such issues as climate change, sustainable development and planning, use and misuse of natural resources, environmental conditions, and the protection of human health, which are now high on the agenda of our curriculum.

All of these courses in each programme are offered at our main campus and subcampuses in Kamra and Multan, respectively. As a result of this programme, there is a larger demand for environmentally conscious, competent, and suitably qualified employees and students.

The following is a list of the courses available.

### Number of Courses/Subjects Related to Sustainability Offered

| S N | Course Code | Course Name  | Sustainability   |
|-----|-------------|--|--|
| 1.  | CS 180      | Introduction to Information and Communication Technologies | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills. |
| 2.  | CS 111      | Programing Fundamentals                                    | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.          |
| 3.  | CS 270      | Professional Practices                                     | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |
| 4.  | CS 214      | Data Structures and Algorithm                              | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.          |
| 5.  | CS 223      | Computer Organization and Assembly Language                | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |
| 6.  | CS 225      | Operating System   | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |
| 7.  | CS 281      | Mobile Computing   | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |
| 8.  | CS 230      | Database Systems   | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.          |
| 9.  | CS 360      | Computer Networks  | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.          |
| 10. | CS 332      | Design and Analysis of Algorithm                           | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |
| 11. | CS 382      | Visual Programming   | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |
| 12. | CS 333      | Theory of Automata   | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.          |
| 13. | CS 340      | Artificial Intelligence                                    | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills  |

|     |               |  |   |
|-----|---------------|--|---|
| 14. | <b>CS 371</b> | Software Engineering                   | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 15. | <b>CS 426</b> | Parallel and Distributed Computing     | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 16. | <b>CS 415</b> | Information Security                   | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 17. | <b>CS 406</b> | Data Science                           | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 18. | <b>CS 402</b> | Data warehousing and Data Mining       | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 19. | <b>CS 300</b> | Full Stack Web Development             | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 20. | <b>CS 484</b> | Cloud Computing                        | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 21. | <b>CS 383</b> | Multimedia Technologies                | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 22. | <b>CS 290</b> | Internship-I                           | Course include expectations focusing on learning sustainability regarding social sustainability   |
| 23. | <b>ME 100</b> | Introduction to Mechanical Engineering | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 24. | <b>ME 140</b> | Workshop Practice-I                    | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 25. | <b>ME 139</b> | Engineering Drawing and Graphics       | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 26. | <b>ME 222</b> | Engineering Dynamics                   | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 27. | <b>ME 233</b> | Fluid Mechanics-II                     | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 28. | <b>ME 248</b> | Manufacturing Process-I                | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 29. | <b>ME 327</b> | Machine Design-I                       | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |

|     |           |                                    |   |
|-----|-----------|------------------------------------|---|
| 30. | ME 312    | Instrumentation and measurement    | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 31. | ME 349    | Computer Aided Engineering         | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 32. | EE405     | VLSI Design                        | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 33. | EE462     | Computer Networks                  | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices.         |
| 34. | EE500     | Final Year Project III             | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 35. | EE402     | Power Electronics II               | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 36. | EE354     | Control Systems                    | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 37. | EE498     | Final Year Project I               | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 38. | EE341     | Electrical Machines                | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 39. | EE201     | Network Analysis                   | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 40. | EE102     | Electric Circuit Analysis          | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 41. | CE101     | Computer Organization Fundamentals | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 42. | CE202     | Computer Architecture              | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 43. | CE31<br>1 | Software Engineering               | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 44. | CE49<br>8 | Final Year Project II              | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 45. | CE49<br>1 | Entrepreneurship                   | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 46. | CE49<br>9 | Final Year Project III             | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |

|     |                   |   |   |
|-----|-------------------|---|---|
| 47. | <b>CE40<br/>2</b> | Introduction to Robotics                | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 48. | <b>MT102</b>      | Workshop Practice                       | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 49. | <b>MT396</b>      | Final Year Project I                    | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 50. | <b>MT142</b>      | Electric Circuits Analysis              | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 51. | <b>MT252</b>      | Signals and System                      | Ensure Sustainability learning with useful alternations regarding suitable learning every year.   |
| 52. | <b>MT396</b>      | Final Year Project I                    | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 53. | <b>MT373</b>      | Modeling and Simulation in Mechatronics | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 54. | <b>BM121</b>      | Circuit Analysis                        | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 55. | <b>BM113</b>      | Human Anatomy                           | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 56. | <b>BM131L</b>     | Computer Aided Engineering Drawing      | Incorporates themes relating to social sustainability and focuses on skills development including problem solving and team working skills |
| 57. | <b>IT495</b>      | Final Project II                        | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 58. | <b>IT494</b>      | Final Year Project I                    | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 59. | <b>CY250</b>      | Secure Software Development             | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 60. | <b>CY244</b>      | Ethical Hacking & Defense I             | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 61. | <b>CY345</b>      | Ethical Hacking and Defense II          | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 62. | <b>CY494</b>      | Final Project I                         | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |
| 63. | <b>CY351</b>      | Web Application Security                | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices          |

|     |              |  |  |
|-----|--------------|--|--|
| 64. | <b>CY495</b> | Final Project-II                       | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices   |
| 65. | <b>MA498</b> | Final Year Project I                   | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices   |
| 66. | <b>MA499</b> | Final Year Project II                  | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices   |
| 67. | <b>PH201</b> | Heat and Thermodynamics                | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 68. | <b>PH207</b> | Physical Electronics                   | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 69. | <b>PH205</b> | Electrodynamics                        | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 70. | <b>PH204</b> | Optics                                 | Incorporates themes relating to social sustainability and focuses on quality education, problem solving and reflective practices   |
| 71. | <b>AM201</b> | Introduction to Aviation               | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 72. | <b>AM203</b> | Weather and Meteorology                | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 73. | <b>AM330</b> | Aviation Marketing                     | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 74. | <b>AM334</b> | Aviation Economics                     | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 75. | <b>AM323</b> | Aviation Security Management           | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 76. | <b>AM445</b> | Human Factors in Aviation              | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 77. | <b>AM453</b> | Airline Finance                        |  |
| 78. | <b>BA111</b> | Financial Accounting I                 | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 79. | <b>BA151</b> | Principles of Management               | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 80. | <b>BA112</b> | Financial Accounting II                | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 81. | <b>BA484</b> | Financial Risk Management              | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |
| 82. | <b>BA475</b> | Project Management Information Systems | Ensure Sustainability learning with useful alternations regarding suitable learning every year<br>Ensure Sustainability learning with useful alternations regarding suitable learning every year |
| 83. | <b>AF141</b> | Principles of Accounting               | Ensure Sustainability learning with useful alternations regarding suitable learning every year   |

|      |       |   |   |
|------|-------|---|---|
| 84.  | HC241 | Principles of Health Care               | Course include expectations focusing on sustainability and social responsibility.                                 |
| 85.  | HC221 | Health Care Policy & Management         | Course include expectations focusing on sustainability and social responsibility.                                 |
| 86.  | TH110 | Public Relations                        | Course include expectations focusing on sustainability and social responsibility.                                 |
| 87.  | TH241 | Cultural Heritage of Pakistan           | Course include expectations focusing on sustainability and social responsibility.                                 |
| 88.  | TH212 | Tourism & Hospitality Laws              | Course include expectations focusing on sustainability and social responsibility regarding environment.           |
| 89.  | PY220 | Ethical Issues in Psychology            | Course include expectations focusing on sustainability and social responsibility regarding Ethical issues         |
| 90.  | PY360 | Social Psychology                       | Course include expectations focusing on sustainability and social responsibility.                                 |
| 91.  | PY380 | Environmental Psychology                | Course include expectations focusing on sustainability and social responsibility regarding environment.           |
| 92.  | SE313 | Software Construction and Development   | Course include expectations focusing on learning sustainability regarding social and environmental sustainability |
| 93.  | SE211 | Human Computer Interaction              | Course include expectations focusing on learning sustainability   |
| 94.  | GM231 | 3D Design and Modelling                 | Course include expectations focusing on learning sustainability   |
| 95.  | AI130 | Programming for Artificial Intelligence | Course include expectations focusing on learning sustainability   |
| 96.  | IR100 | Introduction to International Relations | Course include expectations focusing on learning sustainability   |
| 97.  | IR101 | International Relations since 1945      | Course include expectations focusing on learning sustainability   |
| 98.  | HU110 | Pakistan Studies                        | Course include expectations focusing on learning sustainability regarding social sustainability                   |
| 99.  | HU126 | Introduction to Environmental Studies   |   |
| 100. | HU205 | Business Communication                  | Course include expectations focusing on learning sustainability regarding social sustainability                   |
| 101. | HU213 | Introduction to Psychology              | Course include expectations focusing on learning sustainability regarding social sustainability                   |
| 102. | HU214 | Introduction to Sociology               | Course include expectations focusing on learning sustainability regarding social sustainability                   |
| 103. | HU215 | Ethics                                  | Course include expectations focusing on learning sustainability regarding social sustainability                   |
| 104. | HU217 | Foreign Language: Arabic                | Course include expectations focusing on learning sustainability   |
| 105. | HU218 | Foreign Language: French                | Course include expectations focusing on learning sustainability   |

|      |       |  |   |
|------|-------|--|---|
| 106. | HU219 | Foreign Language : Chinese                 | Course include expectations focusing on learning sustainability                                 |
| 107. | HU221 | Introduction to Environmental Studies      | Course include expectations focusing on learning sustainability regarding environment           |
| 108. | HU222 | Introduction to International Relations    | Course include expectations focusing on learning sustainability                                 |
| 109. | HU223 | Human Rights and Citizenship               | Course include expectations focusing on learning sustainability regarding social sustainability |
| 110. | HU223 | Introduction to Human Rights & Citizenship | Course include expectations focusing on learning sustainability                                 |
| 111. | HU304 | Technical Report Writing                   | Course include expectations focusing on learning sustainability                                 |
| 112. | HU305 | Technical Report Writing                   | Course include expectations focusing on learning sustainability                                 |
| 113. | HU307 | Technical Report Writing                   | Course include expectations focusing on learning sustainability                                 |
| 114. | HU314 | Contemporary International Relations       | Course include expectations focusing on learning sustainability                                 |
| 115. | HU315 | Ethics                                     | Course include expectations focusing on learning sustainability                                 |
| 116. | HU316 | International Relations                    | Course include expectations focusing on learning sustainability                                 |
| 117. | HU317 | Interpersonal Skills/ Public Relations     | Course include expectations focusing on learning sustainability regarding social sustainability |
| 118. | HU318 | Public Relations                           | Course include expectations focusing on learning sustainability regarding social sustainability |
| 119. | HU319 | Principles of Economics                    | Course include expectations focusing on learning sustainability                                 |
| 120. | HU324 | Arabic                                     | Course include expectations focusing on learning sustainability regarding social sustainability |
| 121. | HU325 | Islamic History and Culture                | Course include expectations focusing on learning sustainability regarding social sustainability |
| 122. | HU401 | Technical & Business Writing               | Course include expectations focusing on learning sustainability regarding social sustainability |
| 123. | HU406 | Community Service Learning                 | Course include expectations focusing on learning sustainability regarding social sustainability |
| 124. | HU501 | Academic Writing                           | Course include expectations focusing on learning sustainability                                 |
| 125. | HU607 | Modern Literature                          | Course include expectations focusing on learning sustainability                                 |
| 126. | HU613 | Language and Identity                      | Course include expectations focusing on learning sustainability                                 |
| 127. | HU614 | Functional Linguistics                     | Course include expectations focusing on learning sustainability                                 |
| 128. | HU615 | Pakistani English                          | Course include expectations focusing on learning sustainability                                 |



|      |       |                              |   |
|------|-------|------------------------------|---|
| 129. | PY220 | Ethical Issues in Psychology | Course include expectations focusing on learning sustainability regarding social sustainability |
| 130. | PY212 | Theories of Personality      | Course include expectations focusing on learning sustainability regarding social sustainability |

**Note:** Above is a list of the courses that are offered in Curriculum of different programs which aims to embed sustainability into all course and module content offered by the Air University. The list also includes courses with sustainability already embedded, and those that include the Sustainability in Practice Certificate as part of the core curriculum. Total number of courses with sustainability embedded for courses running in 2021 is 130.