

**[Table] Required Credits for graduation for Doctorate course and Integrated Course**

- Students who entered in or after 2014

| Department                          |                           | Doctorate course<br>(entered from 2014 to 2016) |          |       | Doctorate course<br>(entered in and after 2017) |          |       | Integrated Course |          |       |
|-------------------------------------|---------------------------|-------------------------------------------------|----------|-------|-------------------------------------------------|----------|-------|-------------------|----------|-------|
|                                     |                           | Major                                           | Research | Total | Major                                           | Research | Total | Major             | Research | Total |
| Mechanical Engineering              |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Industrial Engineering              |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Chemical Engineering                |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Material Engineering                |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 51                | 12       | 63    |
| Environmental Engineering           |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Civil Systems Engineering           |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Transportation Engineering          |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Architecture                        |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 54                | 9        | 63    |
| Architectural Engineering           |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 54                | 9        | 63    |
| Systems Engineering                 |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Urban Development                   |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 54                | 9        | 63    |
| Smart Convergence Architecture      |                           | -                                               | -        | -     | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Electrical and Computer Engineering |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Computer Engineering                |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Artificial Intelligence             |                           | -                                               | -        | -     | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Digital Media                       |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Mathematics                         |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Physics                             |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Chemistry                           |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Biological Science                  |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Business Administration             |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Management Information System       |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Global Management                   |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Korean Language and Literature      |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| English Language and Literature     |                           | 57                                              | 12       | 69    | 33                                              | 12       | 45    | 54                | 9        | 63    |
| French Language and Literature      |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Economics                           |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Psychology                          |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Applied Sociology                   |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 54                | 9        | 63    |
| Political Science and Diplomacy     |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 54                | 9        | 63    |
| Public Administration               |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 54                | 9        | 63    |
| Law                                 |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Medical Sciences                    |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Biomedical Sciences                 |                           | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Nursing Sciences                    |                           | 57                                              | 12       | 69    | 33                                              | 12       | 45    | -                 | -        | -     |
| Pharmacy                            | entered in 2014           | 57                                              | 12       | 69    | -                                               | -        | -     | 51                | 12       | 63    |
|                                     | entered from 2015 to 2016 | 54                                              | 15       | 69    | -                                               | -        | -     | 48                | 15       | 63    |
|                                     | entered from 2017         | -                                               | -        | -     | 30                                              | 15       | 45    |                   |          |       |
| Energy Systems Research             |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Molecular Science and Technology    |                           | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| AI and Data Science                 |                           | -                                               | -        | -     | 30                                              | 15       | 45    | 48                | 15       | 63    |

| Department                                    | Doctorate course<br>(entered from 2014 to 2016) |          |       | Doctorate course<br>(entered in and after 2017) |          |       | Integrated Course |          |       |
|-----------------------------------------------|-------------------------------------------------|----------|-------|-------------------------------------------------|----------|-------|-------------------|----------|-------|
|                                               | Major                                           | Research | Total | Major                                           | Research | Total | Major             | Research | Total |
| Education                                     | 57                                              | 12       | 69    | 33                                              | 12       | 45    | -                 | -        | -     |
| Financial Engineering                         | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Bio Medical Engineering                       | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Space Electronics and Information Engineering | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Applied Bio Technology                        | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Military Digital Convergence                  | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Energy Studies                                | -                                               | -        | -     | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Artificial Intelligence Convergence Network   | -                                               | -        | -     | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Systems Biomedical Informatics                | 54                                              | 15       | 69    | 30                                              | 15       | 45    | 48                | 15       | 63    |
| Life Media                                    | 60                                              | 9        | 69    | 36                                              | 9        | 45    | 54                | 9        | 63    |
| Digital Humanities & Convergence              | -                                               | -        | -     | 36                                              | 9        | 45    | 54                | 9        | 63    |