



An overview of ANSYS Academic Products at Release 11.0

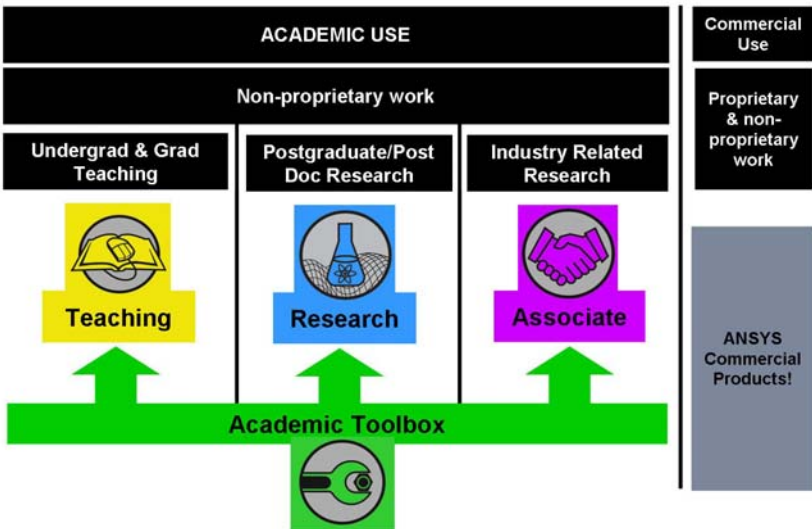
A totally revised, flexible & scalable academic product portfolio.

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ANSYS, Inc. is at the forefront of providing CAE simulation software world wide for academic users, both for teaching and research applications. Our academic products are used by thousands of universities and colleges in over 60 countries, with tens of thousands of academic users. The article intends to provide the reader with a general understanding of our academic products, in addition to reviewing the extensive enhancements introduced to our academic product portfolio at release 11.0 in February 2007.

So, what exactly are academic products or more accurately academic product licenses¹? Generally, the ANSYS Inc. corporate product portfolio is divided into two broad product license categories: Commercial and Academic. The primary difference is in the terms of use: Commercial product licenses are intended for use by 'for profit' companies & organizations where the analysis work performed is often proprietary in nature. Conversely, academic product licenses are intended for use by academic facilities (such as universities) for non proprietary scholarly activity such as teaching, and research. The differences in these "terms of use" allow ANSYS to provide academic licenses at significantly reduced cost (compared to the commercial licenses) in order to meet academic budget requirements.

Figure 1. The intended use of ANSYS Academic Products:



Academic products from ANSYS are also "packaged" differently from commercial products with product names and license files that differ from the commercial product portfolio. Academic products are bundles of analysis technology, often incorporating many commercial products and add-on modules, some containing more than 10 commercial products in a bundle. A single academic product license may contain multiple tasks (such as 5, 25 or 50 tasks), in which each task maps to a separate user. With a few exceptions the academic products are derived directly from commercial product variants. When we have a release, such as ANSYS Release 11.0, both commercial & academic

products are part of the release. For the user, academic products have exactly the same look and feel as the commercial products. For example a user accessing the ANSYS Multiphysics capability bundled with an academic product will have the same GUI³, workflow, pre-processing, post processing & solver as the commercial product. In most cases the academic user will actually have access to many more features than the average commercial user!

The ANSYS 11.0 academic product portfolio includes ANSYS Multiphysics, ANSYS CFX, ANSYS ICEM CFD, ANSYS TAS, ANSYS AUTODYN, plus a broad selection of computer-aided design (CAD) geometry interfaces (Figure 2). The Fluent academic products are not part of the release 11.0 academic portfolio, but some will be integrated in the ANSYS 12.0 release, creating an academic product portfolio that includes all major technologies from ANSYS. The guiding philosophy is to provide academia with very high-value bundles of analysis technology, negating the need to purchase multiple products, while reducing complexity and improving scalability

Figure 2. The ANSYS release 11.0 academic products. For specific details as to what is included in each of the academic products listed in the table, please review the feature table on our academic solutions webpage.

Product Name
ACADEMIC ASSOCIATE
ANSYS Academic Associate
ANSYS Academic Associate AUTODYN
ACADEMIC RESEARCH
ANSYS Academic Research
ANSYS Academic Research CFD
ANSYS Academic Research LS-DYNA
ANSYS Academic Research AUTODYN
ACADEMIC TEACHING
ANSYS Academic Teaching Advanced
ANSYS Academic Teaching Introductory
ANSYS Academic Teaching Mechanical
ANSYS Academic Teaching CFD
ANSYS Academic Teaching AUTODYN
ACADEMIC TOOLBOX
ANSYS Academic Meshing Tools
ANSYS Academic CFD Turbo Tools
ANSYS Academic LS-DYNA Parallel
ANSYS Academic Mechanical HPC
ANSYS Academic AUTODYN HPC
ANSYS Academic CFD HPC

The academic product variants are organized into four product subfamilies – Teaching, Research, Associate, and Toolbox – with each subfamily having specified terms of use and capabilities. The Teaching subfamily is the lowest priced and includes entry-level products intended for undergraduate and graduate class demonstrations and hands-on instruction. Teaching level products have numerical problem size limits, which vary by physics, with higher limits assigned to “external field” physics such as electromagnetics and fluid dynamics (Figure 3). The Research and Associate subfamilies have broader terms of use and can be used for both research and teaching. They have no problem-size limits, providing unlimited⁴ numerical headroom for doctoral and post-doctoral research work. The Toolbox subfamily addresses high-performance computing (HPC) and more specialized preprocessing concerns.

Figure 3. Numerical problem size limits for the Academic Teaching Level products. Note that the limits vary by physics, with higher limits assigned to “external field” physics like electromagnetics & fluid dynamics.

	Structural & Thermal	Direct Coupled Field	LF Emag	HF Emag	FLOTRAN	DesignSpace ²	CFX	AUTODYN ³	TAS ²
Academic Teaching Advanced	256K	256K	512K	1024K	1024K	8	512K		8
Academic Teaching Introductory	32K	32K	64K	512K	512K	8	512K		8
Academic Teaching CFD							512K		
Academic Teaching Mechanical	256K	256K ¹				8			
Academic Teaching AUTODYN								50K	

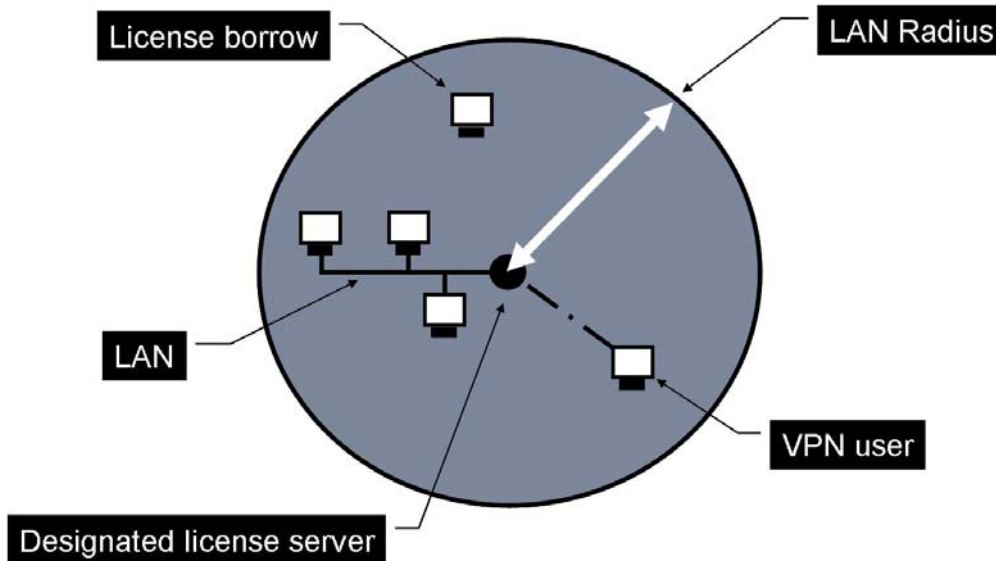
Each academic product can be purchased in defined task increments. A single task is a single user. A 25 task license will allow a maximum of 25 simultaneous users. The second column of figure 3 shows the task increments available for each product license. Any combination of these tasks is allowed, and volume discount is built-in, so that it is more economic to purchase a single 50 task license than two 25 tasks.

The academic product licensing limits access to the bundled products contained within the license, so that a 25 task license will limit the task check out up to 25 tasks of a “tangible stand alone product capability”. This means that although the academic product may contain ANSYS Multiphysics and ANSYS CFX, for a 25 task license, the combined total of Multiphysics & CFX simultaneous users is 25.

The academic product licenses are floating local area network (LAN) licenses, utilizing a single, designated license server⁵. Since the majority of the academic products are multiple task licenses, this means that all of the tasks are floated on the server's LAN. The products can be installed on as many machines connected to the LAN as you like, however the number of users who can simultaneously access the software is limited by the number of task purchased (1, 5, 25 or 50 etc). When a single user needs a totally independent single task on a machine, even a laptop, then both the ANSYS license manager software & academic product should be installed, and this single machine then becomes its “own” license server.

For our academic products we impose a 50 mile LAN radius. Users can access (check out) licensed tasks from the license server only when they are physically connected to the LAN, or if they are using a VPN connection. Additionally, the Academic Teaching level products have a license borrow feature that allows laptop users to check out a licensed task and then unplug from the LAN and work remotely for up to 7 days. These “borrowed” tasks must stay within the 50 mile LAN radius, and users may borrow up to n-1 tasks from an n task license. Note that the license borrow feature is OFF by default, it can be turned on (for no additional charge) at the time of the license purchase or renewal. The combination of a relatively large LAN radius, license borrowing & flexible task increments addresses the majority of academic usage scenarios, from more traditional “lab” or lecture room requirements, to students, teachers & researchers working remotely. A larger LAN radius (for distance learning programs) or a total academic software solution for an entire campus can also be met: For more detail please discuss with your ANSYS sales person.

Figure 4. The 50 mile academic LAN radius is the LAN boundary for physical LAN connection, VPN & the license borrow feature.



Footnotes:

1. *Strictly speaking, ANSYS Inc. sells licenses to use our software products, rather than selling the software outright.*
2. *FLEXnet is a commonly used software license manager from Acresto (formerly Macrovision).*
3. *Note that most of our academic products have a noncommercial logo present on the screen for further emphasis.*
4. *Note that your hardware configuration (amount of RAM) will impose physical limits to the largest problem size.*
5. *Note that we can provide academic product license files for either single server or three server redundant systems.*