

# **Bachelor's Degree in Healthcare Engineering Technology Management (HETM)**

**(formerly known as Biomedical Engineering Technology)**

**Indiana University Purdue University Indianapolis (IUPUI)**

**(made possible by a financial contribution from Aramark Corporation, CTS)**

**Overview:** IUPUI (a campus of Purdue University and Indiana University) offers a Bachelor's Degree (BS) in Healthcare Engineering Technology Management. The degree has a focus on the practice of medical equipment support in the clinical environment. The degree can build on a person's associate's degree and many courses are available at a distance.

## **Facts:**

Purdue University is one of the few schools in the country to offer coursework which leads to a Bachelor's Degree in Healthcare Engineering Technology Management (with a clinical focus). Please carefully review the program objectives listed below...this curriculum is **not** designed to prepare graduates for work in research, to attend medical school or other typical "Biomedical Engineering" career paths. For BMETs already in the field, the program might have been called clinical engineering or biomedical equipment technology.

Many of the courses are delivered in the virtual Internet classroom, called *Canvas*, without concern for a student's geographic location. The courses follow a typical 15 week college semester (two main semesters per year) and are not "independent study." Look below for more information about the online course environment.

This BS program has been made possible with a financial contribution from the Aramark Corporation, Clinical Technology Services. These funds allowed IUPUI to develop the online courses which focus on healthcare technology management content.

Links: Please visit the School of Engineering and Technology web pages for details such as curriculum, etc. <http://hetm.engr.iupui.edu>

## FAQ's:

**Who can earn this degree?** The admission requirements for this degree follow the requirements for all School of Engineering and Technology majors at IUPUI. All applicants who meet the criteria are admitted. Applicants must be high school graduates or produce home school transcripts. No SATs are required for those who have been out of high school more than six months.

Applicants who do not meet the requirements for direct admission into the School of Engineering and Technology can be admitted into University College. This is a stepping stone process which does not impact course work or length of time required to earn the degree.

**What courses are required to earn the degree?** The BS degree requires specific courses. The distance education portion of the degree is the junior and senior level coursework, designed to build on previous study or experience. Many of the freshman and sophomore level classes (first twenty courses) are electrical in nature and may require on-campus work. Freshman and sophomore level students not able to attend classes in Indianapolis can work with an advisor to seek another school (with matching accreditation) at which to take the classes and transfer them to IUPUI. For freshman and sophomore level students who do not live in Indianapolis, this may not be an easy or convenient process. In addition, students may be limited by the offerings at schools which are geographically close to them.

**Who grants the degree?** Purdue University. Purdue University is a nationally recognized and accredited institution of higher education.

**Is the *entire* degree available online?** **No**, while some courses are available through a distance, most educators agree that some subjects, Chemistry for example, are best learned in a traditional classroom setting. The program has been designed to allow almost all junior and senior level courses to be available over a distance. Junior and senior level courses which are not offered over a distance are widely available at most institutions of higher education. Students who are unable to come to Indianapolis will be encouraged to seek courses not available via the Internet from local schools with appropriate accreditation. For students **without** BMET or electronics background or work experience, this curriculum may not be an easy or convenient process. More information specific to your geographic needs and your background is available from the program director.

**How long will it take to earn the degree?** Duration depends on several factors. First, do you have any courses which match courses listed on the plan of study? Please keep in mind that only courses which exactly or very closely match the list required for graduation can be transferred to IUPUI and "count" toward the degree in HETM. This may be disappointing to a person who hopes to receive numerous credits for coursework already taken at other schools. (CBET certification or DoD BMET training is likely to dramatically speed up the process of degree completion, see below.)

Second factor: how many classes can you reasonably complete per year? Students working full time can typically complete four to six courses per year. IUPUI operates on a traditional semester schedule. Students who can enroll fulltime would need 8 semesters (4 years) to complete the entire program.

Please be aware that IUPUI/Purdue does not operate like some other popular institutions of higher education, offering courses every few weeks with one week off to facilitate full-time enrollment. IUPUI does **not** offer or support the possibility of participating full-time when working full-time.

**Can I use my associates degree and other college credit toward the bachelor's degree at IUPUI?** Yes, with some restrictions.

- **Only** credits earned at **regionally accredited institutions** are eligible for transfer to IUPUI. Schools not regionally accredited include ITT, Brown Mackie College and a other private electronics/vocational schools. You can determine if a school is regionally accredited by clicking [here](#).
- College credit for life experience will probably not transfer. Colleges and universities which give substantial credit for life experience may find limited transferability to IUPUI.
- Courses in which you earned a course grade of C or below are not transferable.
- In order to earn the BS degree, at least **32 credits** (at the junior and senior level) must be provided directly from IUPUI. NO exceptions are available to this policy.
- Courses which will transfer toward our degree must match the courses required for the degree. For example, a student took many courses in physical education in college (golf, bowling, personal training etc). There are no PE courses required for this degree degree. So, unfortunately, these will not transfer to the BS at Purdue.
- While there is no doubt you have college credits and/or a degree, direct transfer credit is not always possible (see credit by exam details below) (see certification credit below).

Each person's transcript will be compared with the list of classes required for the BS degree. Any classes on a transcript which closely match our classes would be potential transfer credits. Courses which do not match one of the courses required for this degree will not be able to be used towards the Purdue degree.

Students who have an associates degree may still need to complete additional courses so that their background matches the Purdue associates degree requirements. This is especially true for graduates who earned their associates degrees more than 10-15 years ago. The biggest difficulty is with changing technology. For example, course work in networking, PCs and microprocessors was very different (or missing) from graduates from the past. Consequently, some students who already have associates degrees may need to take a few lower division courses which better match today's technology. The program advisor will assist the student in locating coursework from institutions which are convenient to the student if study in Indianapolis is not possible.

**How can you tell what courses will transfer?** Look at the list of classes you have taken and then look at the list of classes we require. In order to transfer to IUPUI, the course must closely match the Purdue required course. For example, you took a math class that was an introduction to Algebra (similar to high school algebra). We require MATH 153 which is essentially college algebra. Therefore, we cannot accept the math class you took as a course which counts toward your IUPUI degree. Another example, you took a soldering class as part of your electronics curriculum. We do not require a soldering class. Unfortunately, the soldering class would not transfer toward you Purdue degree. Many people ask to have their

transcripts evaluated prior to enrollment. It is recommended that you do the preliminary evaluation yourself. It is fairly simple, for example, if you took ac electronics, we will likely give you credit for ECET 207. If you took a course on turbine engine repair, there is no IUPUI course which matches this and therefore, we cannot offer you credit towards the Purdue BS degree.

**Can I use CLEP, Dantes, or other credit by exam programs to establish college credit?** Yes, with limitations. Some institutions possess a flexible curriculum that offers the opportunity to count many credit-by-exam courses into the curriculum. At Purdue, each course must have an exact match. That means, if you took the CLEP exam for English Literature, it can only count as a liberal arts course. If you don't need a liberal arts elective, then the course will not count toward your degree. Students who take many CLEP exams have established numerous college credits. Unfortunately, they may not all fit neatly into the curriculum or count toward the degree. If you would like to make use of CLEP credits completely, you may need to explore a General Studies degree. Information about that degree is available [here](#)

**What about "testing out" and "credit for life experience"?** Purdue University has fairly strict requirements for evaluation of life experience in replacement for specific courses. In most cases, students who feel they know the material covered a specific course (but have not earned college credits for it) will be offered the opportunity to complete the final exam for that course. There is no fee to do this. Students who pass the exam will be give credit for the course for a very small fee. Students who are unsuccessful will need to complete the course. Credit is only granted on a course-by-course basis. There are no blanket number of credits provided for military or work experience. (See note below about CBET certification and DoD training.)

**What about credit for certification?** Are you a certified BMET (CBET) (through the International Certification Commission and AAMI)? IUPUI will award you a block of technical credits (out of the total 120 credits required) when a student has this certification. These credits will count toward the first and second year technical credits (the AS degree). This would be beneficial to avoid a course-by-course comparison. Please be aware that the credit offered can **only** be applied toward coursework in the BS in HETM, no other IUPUI program. Please get more specific information from the program director.

**What about credit for BMET military training (Biomedical Equipment Technology Program at MDEC, Ft Sam Houston)?** An agreement for transfer credit modeled after the CBET certification has been approved. 42 transfer credits will be awarded similarly to the CBET award described above. These credits can be awarded even if the applicant has never attended college. This applies **ONLY** for completed BMET training in the military (trainees who do not complete the course will need to speak with the program director for customized information). Aviation, calibration or other military specialty schools do **NOT** automatically earn credits although this work will be evaluated through the normal prior learning assessment (PLA) process. For more specific information, please contact the program director.

**Can I use my GI benefits?** Yes, and we have many people that do. You can get more information [here](#).

**With so much transfer credit, can't I "have" an Associates Degree?** Unfortunately, the credit arrangements only apply for work toward a BS degree. To earn an associates degree, transfer courses need to match exactly and 15 credits must be taken from IUPUI (not awarded as transfer credit).

**I already know what you are teaching, can't I "have" a Bachelor's Degree?** Unfortunately, Purdue just isn't that kind of school. **All** students will have to take classes from IUPUI. All students will have to have at least 32 credits from IUPUI. Check your email inbox for other schools that offer college degrees without taking classes. In addition, this BS degree is not just a "list of facts" to be memorized or competencies to be attained. It is highly possible that, if there were such a list, experienced BMETs could check off most of them. IUPUI wants to advance your analytic skills, customer service and communication abilities. Most of all, we hope to instill in you the skills you will need to continue to learn long after your degree has been awarded.

**Is this an engineering degree? Will I be qualified to seek CCE certification (American College of Clinical Engineering) with this degree?** Engineering degrees are, by definition not technology degrees. They almost always require four semesters of calculus or higher math. Engineering coursework has a calculus base and is often more theoretical than engineering technology study. In addition, engineering degrees typically do not offer transfer credit for technology related coursework. With this in mind, the Biomedical Engineering Technology degree at IUPUI degree is not an engineering degree and does not facilitate CCE certification. More information about CCE is available [here](#). A list of ABET accredited Biomedical Engineering programs is [available at abet.org](#).

**Sounds great, when can I start?** Anyone who wishes to enroll in this degree program will need to apply to IUPUI. That is the first step. Transfer credit analysis is done as part of the admissions process. More information about admissions can be found on the web [here](#). The application can be completed online. The application process is not an immediate one as occurs at some other institutions. We do not have open admissions and everyone's application takes about 3-4 months to be processed. You cannot decide to enroll and enroll tomorrow.

**How much does this cost?** Now for the bad news. Purdue is a state institution and Indiana residents are give preference in tuition rates. Out of state students pay substantially more. (Note: some states allow military personnel to pay instate tuition rates, regardless of location. That is **not true** in Indiana.) (*Aramark CTS employees have a tuition cost reduction through their company. In addition, Aramark employees may be eligible for coursework paid directly by Aramark. Please contact the program advisor for more details.*) Current tuition for instate and out-of-state students on the [www.iupui.edu](http://www.iupui.edu) website. Please note, in addition to tuition there are fees and book expenses to include in the overall program cost.

**But what is the total cost?** The total cost of the degree depends on the amount of transfer credit you receive as well as how many classes you can obtain at lower cost institutions. Some general courses such as chemistry and accounting could be obtained at local institutions for much lower rates. Bottom line, it is very difficult to state a total cost, although the program

coordinator is happy to assist a student in the calculation of an estimate unique for each student.

**Out of state tuition is outrageous, you have got to be kidding! Is there any other option?** Unfortunately, we are a state institution and the Board of Trustees has determined that distance education students must pay out of state tuition. The program director has **no** control over tuition rates (although she works hard to petition for a distance education tuition rate). If you are interested in the rules which IUPUI uses to determine Indiana residency, they are listed [here](#). Recall that you only have to take 32 credits from IUPUI in order to earn the degree, so the overall expense can be lessened by seeking the other courses at lower cost providers. Your advisor will assist in this process.

**But wait, why are Aramark CTS employees treated differently for tuition purposes? Are they just "getting" the degree?** Many colleges form partnerships with large corporations. For example, Rolls Royce pays for tuition AND room and board for its employees working on their Masters degree here on our campus. In these arrangements, corporations are billed directly for all employees enrolled here. Many higher educational institutions do this. Institutions who offer quality, reputable degrees DO require all students to perform the same work to earn their degree. Students at every institution everywhere pay different tuition rates based on financial aid, merit scholarships, employer reimbursement and other financial arrangements.

**Is financial aid available?** Financial is available to students who qualify. More information can be found [here](#). It is important to be aware of financial aid deadlines. Almost all aid requires the completion of a FAFSA form. More information about the form can be found [here](#).

**What is it like to learn using the Internet classroom, Oncourse?** First, dismiss any notions you may have about correspondence courses. The Internet allows the student to view content over web pages and multimedia (some streaming video although this is not the primary content delivery method). Students also participate in discussions, group work and make presentations in the virtual classroom. All communication is self-contained within the virtual classroom. Exams are also taken in the online classroom with layers of security to promote appropriate student learning.

**Is this an "online degree"?** There are some schools which promote online learning as a "shortcut" to earning a degree. This program is held to Purdue University's quality standards. The coursework and level of difficulty are the same for all students, regardless of whether they are in Indianapolis or Alaska. Our online coursework is designed to make use of the Internet to bring experts to the "classroom," encourage student participation regardless of location and take students into content areas that are impossible in the traditional classroom. Bottom line, this is NOT an easy route to a piece of paper. You probably already have a list of schools which can provide that.

**Can everyone earn the degree?** Just like any college major, this BS degree is not suited for everyone. IUPUI has an expectation of math mastery, proficiency in communication skills and a fundamental interest in technology. These expectations will not match the educational interests of all BMETs, both in their previous coursework and in their desire to learn more. In addition,

students will need to be focused and determined in order to complete the work required. However, IUPUI is committed to closely supporting students who wish to pursue this degree, offering support services (online math tutoring, for example) and encouragement for successful learning.

**Are there opportunities for project based learning?** All students are expected to complete a senior project, related to the BMET field, of their own choosing. Coursework guides the project management and mentoring keeps the course results oriented.

**Do you have a Masters Degree in BMET?** There is a Master of Science Degree in Technology available here in Indianapolis. Students must study in Indianapolis, although it can be full or part-time. The curriculum is tailored to match the students interests. More information can be obtained from the program director.

**Who can I contact for more information?**

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