

Best Practices of Honor Societies

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Abstract

Academic honor societies are widely available within university communities. These student organizations can fill valuable roles within engineering departments. The inception of engineering-related honor societies followed the establishment of engineering education within American universities. Honor societies with their student focus grew as complementary organizations to the professional societies for engineering disciplines. The national or international structure of honor societies generally provides considerable resources for professional education, leadership training, and service activity. For departments, an honor society chapter can provide engagement with students, alumni, community, etc. However, the existence of an honor society chapter at an institution does not necessarily mean that the chapter is effectively serving the host department(s) and its engineering students. This paper describes commonalities among engineering honor societies, the possible roles of an honor society within an engineering department, and some best practices for effective honor society chapters. Specific examples from the operation of IEEE-Eta Kappa Nu (IEEE-HKN), the honor society of the Institute of Electrical and Electronics Engineers (IEEE), are given.

Keywords

Honor Societies, Profession, Student Life

1. Introduction

Engineering honor societies have a historic place within engineering education at American institutions and they are expanding internationally. These student organizations have collegiate chapters that are supported by international and national structures and they complement the educational activities of professional engineering societies. Honor societies focus on the development of their member students and on excellence in engineering education. Their chapters are most effective when the recognition component is combined with student peer communities,

service learning initiatives, and general engagement for positive impacts across the university community. For chapters to go beyond their first function of student recognition, best practices of effective chapters need to be shared.

This paper addresses academic honor societies for engineering education. These student organizations were developed to recognize student excellence to the benefit of both its member students and its host departments and schools. Engineering honor societies have a common history and common characteristics, as well as a variety of potential roles within higher education. Best practices are discussed regarding effective honor society chapters. Specific examples from the operation of IEEE-Eta Kappa Nu (IEEE-HKN), the honor society of the Institute of Electrical and Electronics Engineers (IEEE), are given.

2. Engineering Honor Societies

2.1 History of American Honor Societies

The industrial revolutions prior to 1900 led to the growth of engineering careers. Various professional societies in engineering were formed to serve these disciplines. Higher education responded as well with the development and specialization of engineering degree programs^{1,2}. Engineering professional societies supported engineering education with outreach and student chapters, but the profession saw value for separate organizations that recognized high academic achievement among students preparing for the engineer profession and that created a community among those so recognized. The primary focus of the professional societies is promoting the profession in general; the primary focus of the honor societies is promoting the profession through excellence in education. (This focus does not preclude activities or membership opportunities for working members of the profession.)

Tau Beta Pi, the second oldest honor society, was founded in 1885 for engineering students^{3,4}; Phi Beta Kappa, founded 1776, had evolved into an honor society for liberal arts and sciences. Other honor societies were

organized for academic recognition in engineering and non-engineering specialties as well as recognition for research, leadership, etc. These honor societies have been popular among students and have become common features within American higher education. As new disciplines developed, new honor societies were formed or existing honor societies integrated. For instance, aerospace engineering has Sigma Gamma Tau (formed 1953) and computer engineering became affiliated with the honor society for electrical engineering (Eta Kappa Nu). While most honor societies have predominantly American student chapters, many honor societies are expanding internationally.

An early concern was to have a uniform definition of the honor society concept. In 1925, several honor societies created the Association of College Honor Societies (ACHS) to develop standards for membership eligibility, governance, and chapter operations⁵. ACHS membership is offered to organizations that adhere to its standards. Tau Beta Pi was a founding member of ACHS.

2.2 Characteristics of Engineering Honor Societies

ACHS provides clear requirements for its member honor societies. Hence, membership is a certification that promotes the integrity of the concept of an honor society. The intent is to have a clear contrast between legitimate honor societies and illegitimate ones. ACHS⁵ defines an honor society as “an association of primarily collegiate chapters whose purposes are to recognize and encourage high scholarship and/or leadership achievement in some broad or specialized field of study.” It further lists minimum eligibility criteria for scholastic excellence and member-center work of honor societies. Typical activities and programs are given as awards, recognition, support (scholarships, fellowships and grants), program initiatives,

meetings (seminars, workshops, and conferences) and publications.

Table 1 shows the founding year and ACHS membership status of Tau Beta Pi and some of the prominent honor societies for specific engineering disciplines⁴⁻⁹. All of these honor societies support the standards of ACHS and all were formed during the early growth years of engineering educational programs. A common characteristic is academic recognition, but other commonalities are community and service. Note the similar themes found in the ways these honor societies describe themselves.

- Tau Beta Pi: “Integrity and Excellence in Engineering” (Motto)
- IEEE-Eta Kappa Nu: “Scholarship, Character, and Attitude” (Ideals)
- Pi Tau Sigma: “Integrity, Service, and Leadership” (Core Values)
- Chi Epsilon: “Scholarship, Character, Practicality, and Sociability” (Pillars)
- Omega Chi Epsilon: “Recognition, Investigation, Service, Comradeship, and Professionalism” (Objectives)

A common characteristic of engineering honor societies is close cooperation with associated professional societies. For the prior list, electrical and computer engineering has the Institute of Electrical and Electronics Engineers (IEEE) and HKN, mechanical engineering has the American Society of Mechanical Engineers (ASME) and Pi Tau Sigma, civil engineering has the American Society of Civil Engineers (ASCE) and Chi Epsilon, and chemical engineering has the American Institute of Chemical Engineers (AIChE) and Omega Chi Epsilon. (For IEEE and HKN the relationship is formal with HKN being a unit

Table 1. Some Engineering Honor Societies

Discipline	Honor Society	Founding Year	ACHS Membership
Engineering (General)	Tau Beta Pi (TBP)	1885	Yes
Electrical & Computer Eng.	Eta Kappa Nu (HKN)*	1904	Pending
Mechanical Eng.	Pi Tau Sigma (PTS)	1915	Yes
Civil Eng.	Chi Epsilon	1923	Yes
Chemical Eng.	Omega Chi Epsilon (OXE)	1931	Yes
* Since 2010, HKN is under the umbrella of IEEE as IEEE-HKN			

within IEEE¹⁰.) The specific honor society and professional society serve the same professional community. Many of the leaders of the professional society have honor society membership and often honor society activities are targeted at developing leadership skills among its student members. For the college environment, many engineering departments have student chapters of the honor society and the professional society. These chapters frequently have joint activities.

Honor societies of other disciplines that are closely allied with engineering disciplines share much. For instance, Sigma Pi Sigma¹¹ is the honor society for physics. It was founded in the same time period (in 1921), it is a member of ACHS, and it lists values of honor, encouragement, service, and fellowship. Sigma Pi Sigma is formal part of the Society for Physics Students under the American Institute of Physics.

3. Honor Societies within the University

3.1 Potential Benefits of an Honor Society

Engineering undergraduates have a wide variety of campus organizations that can complement their academic activities. The categories of these organizations include student government, student publications, fraternities and sororities, athletic groups, chapters of professional societies, honor societies, design/competition teams, recreational clubs, and special interest clubs. Students who are engaged in campus life tend to perform better academically and professionally¹². Each student organization has its own purposes that give value to involvement, but students who participate gain potential benefits for both the short term and the long term. These benefits include the organizational opportunities to practice social, leadership, and teamwork skills and to form peer groups that support and enrich the college experience. To varying degrees, student organizations tend to create networking situations with faculty, alumni, and industry.

Consequently, employers often look for some organizational experience on resumes and in interviews.

Discipline-specific organizations offer additional benefits. Student branches of professional societies, chapters of honor societies, and design teams are example organizations. These groups typically have enhanced opportunities for networking with engineering faculty and working professionals such as formal mentoring programs or regular networking activities. Common activities also directly address skills and knowledge related to the profession. While professional society chapters and design teams tend to focus on technical and career issues, honor societies tend to focus on professional skills and service as well as issues related to research and graduate education. Formal or informal peer groups within honor society membership can be particularly effective for social and academic support. Honor society membership represents a record of both academic excellence and professional citizenship. (Note that the value of the recognition is associated with the relationship of the honor society with an established professional association, with society operation according to the principles listed in the prior section, and the collective legacy of the membership.) Fig. 1 shows a student benefits flyer for a chapter of IEEE-Eta Kappa Nu at Missouri University of Science and Technology.

3.2 Potential Roles of an Honor Society

The reputation of engineering departments or schools is dependent in part on successful graduates. Discipline-specific student organizations, including honor societies, support this outcome. Also, honor society chapters can play direct roles in supporting department operation, student life, and community outreach. Table 2 shows examples of service, representation, and connection. Significant resources and chapter recognition are often available from the international or national society structure to facilitate and encourage such roles.

Table 2. Example Activities of Chapter Engagement

	Example Activities
Service	Peer Tutoring, Technical & Professional Workshops, Pre-college Programs, & Facilities Management (Study Rooms, Maker-Laboratory Spaces, etc.)
Representation	Recruiting Events, Visitor Tour Guides, & ABET Advisory Committees
Connection	Networking Events with Alumni, Industry Recruiters, & Professional Leaders



IEEE-ETA KAPPA NU

*Electrical and Computer
Engineering Honor Society*

Gamma Theta Chapter

Of IEEE-Eta Kappa Nu (IEEE-HKN)

For Electrical and Computer Engineering students at the Missouri
University of S&T.

Election based on scholarship, character, and service



<http://web.mst.edu/~hkn>

SOCIETY ACTIVITIES

- ◆ INTERACTION WITH FACULTY AND PEERS
- ◆ OPPORTUNITIES FOR SERVICE
- ◆ RECOGNITION OF EXCELLENCE
- ◆ HELP SESSIONS AND SKILLS TRAINING
- ◆ STUDENT PROJECTS LABORATORY

*"This is what we strive for as members of Eta Kappa Nu: to lead a balanced life,
a life in which scholarship, character, and personality are jointly developed."
Initiation Ritual for Eta Kappa Nu Members*

Figure 1. Benefits Flyer for Missouri S&T Honor Society

Service is an integral aspect of chapter activities. The membership process may include a requirement for service and member events may have altruistic purposes. Chapters may initiate, organize, and conduct service with minimal cost and personnel time from the department and faculty.

A department or school has numerous needs for student representation in formal and informal capacities. The membership process of the honor society has identified students who have succeeded in the program and who have good leadership and communication skills. These students can provide a valuable student perspective related to recruiting or accreditation.

An honor society chapter can have an independent connection to alumni, industry, and professional leaders. The chapter can be a vehicle for bringing these external parties to a campus. The networking opportunities can benefit the all students, not just the honor society members.

Chapters of honor societies have access to financial and material resources from the national or international

organization for officer training, professional topics, distinguished lectures, etc. For instance, Tau Beta Pi has an Engineering Futures program that provides professional skills seminars and a MindSET program for pre-college outreach⁴. Chapters can be rewarded for the extent and impact of their engagement activities with organizational activity awards for the best or outstanding chapters.

4. Best Practices of an Honor Society

4.1 Making an Honor Society Effective

The first function of an academic honor society chapter is to recognize students for scholarly achievement, cf. ACHS definition. A chapter that fulfills this function maintains standing as an active chapter, provides a recognition benefit to its student members, and supports its host department or institution. As noted in the previous section, student benefits and campus engagement can be expanded by more ambitious chapters.

Faculty interest in and guidance of an honor society are critical components for chapter effectiveness, particularly if the chapter impact goes beyond simple membership recognition. If honor society activity is important to faculty, it will be viewed as important by students. The key faculty members are the faculty advisor(s) who is/are the direct liaison(s) between the students and the department head who creates the reward structure for advising and who may appoint the advisors. The value of active faculty advising has been noted as well as common disincentives for advising work, especially on a research-oriented campus¹³. Some chapters lessen the time commitment for an individual faculty advisor by having multiple faculty advisors, industry advisors, or graduate student advisors. In such cases, the duties of each advisor should be specified across the advising team.

Honor societies with a range of activities expand the opportunities for student members to develop through service learning. An active chapter requires significant management of schedules, finances, volunteer effort, etc. An effective chapter provides informal or formal training in leadership, communication, and other soft skills and offers immediate opportunities to practice these skills. This training may take the form of officer transition meetings, advisor orientations, or formal programs, cf. Tau Beta Pi's Engineering Futures sessions. Chapter activities in support of the host department or school facilitate collaboration and

networking with faculty. Such faculty mentors can write recommendations with both academic and organization observations.

Effective chapters of honor societies have strong histories. They have created a set of activities that are tailored to their size, situation, and needs. These activities may evolve over time, but they tend to be consistent from year to year. Incoming members have expectations of member benefits and of engagement with their peers, the faculty, alumni, etc. These expectations are maintained in part by chapter visibility and by evidence of prior successes. Examples are formal initiation events, campus monuments, and award displays such as those in Fig. 2.

4.2 The IEEE-Eta Kappa Nu Experience

IEEE-Eta Kappa Nu is the honor society for IEEE fields of interest, electrical and computer engineering (ECE) primarily^{6,10}. Most of our student members have many local student organizations from which to choose. They choose IEEE-HKN because it has the best set of benefits. Our surveys show that the most mentioned benefits for joining the honor society are:

- Recognition to assist with job search,
- Networking with other successful students and engineering faculty,
- Entry into a social community on campus, and
- Opportunities for service and service-based learning.



a)



b)

Figure 2. Missouri S&T: a) Tau Beta Pi Monument¹⁴ and b) IEEE-HKN History Display

The ideals of IEEE-HKN are “Scholarship, Character, and Attitude.” The member election process determines potential eligibility by demonstrated academic abilities (scholarship) and builds relationships among members and faculty. Recommended chapter programs highlight service to others (character) and capacity for collaborative effort (attitude). Among its signature activities is an Outstanding Chapter Activities award program in which about ten percent of chapters are recognized, in large part to their demonstrated service. During the last report cycle, over 91,000 hours of service were documented.

The active membership of the typical IEEE-HKN chapter is primarily undergraduates since most inductees are inducted as undergraduates. However, graduate students (as well as professionals) can also be inducted and undergraduates who continue their education in a graduate program can remain active. Many effective chapters have graduate students as officers or as graduate advisors. These arrangements can provide greater continuity in chapter leadership and can encourage closer interaction among undergraduates and graduate students. Graduate student members often find particular value in the networking and social aspects of an HKN chapter. When HKN students continue their education at a different institution, the new HKN community can facilitate the transition and can provide an immediate and familiar social connection.

The international IEEE-HKN organization encourages above-the-chapter networking among students, faculty, and industry through events such as the annual student conference. Student engagement extends to the IEEE-HKN board of governors with two voting positions for students⁶.

The impacts of this honor society on students and institutions are reflected in the following quotes:

“HKN was the first organization I joined where the focus was not on what we could get out of membership, but on what we could give. Those opportunities to serve turned into opportunities to learn and demonstrate leadership, which were instrumental to finding and succeeding at my first job. As a more established professional, I find myself turning more frequently to HKN for technical leadership and connections within our larger community.” Perspective of Graduate¹⁵.

“At first, I thought HKN was just another organization to add to my resume; however, I quickly realized the impact that HKN has at my school, Rose-Hulman Institute of Technology. HKN has been a major factor in helping Freshmen adjust to the workload and lifestyle at Rose. I am proud to be part of HKN.” Perspective of Student¹⁶.

“Joining HKN around 2 years ago was one of the most influential moments of my undergraduate career. The people I have met have continued to inspire and challenge

me. The activities hosted by the Chapter - service events like exam reviews & social activities – have helped me grow professionally and academically.” Perspective of a Chapter President¹⁷.

“IEEE-HKN is a valuable asset in the department. The students play a role in student recruitment, service to underclassmen, social coordination, and outreach in the community. I call on IEEE-HKN frequently to help with prospective student visits. They always respond with a first-class effort. The department is far better for HKN’s involvement, and all the students and faculty benefit.” Perspective of a Department Chair¹⁸.

“[The IEEE-HKN chapter continues] to make a strong positive impact on the department and the profession through activities such as tutoring, outreach activities with local schools, and their IEEE-HKN Awards ceremonies each semester. ... Since being reactivated in 2014, the chapter won an Outstanding Chapter Award for the 2nd straight year. Finally, I am very proud of them as they received a \$10,000 grant from EPICS in IEEE for their project “Ride-on Cars for Children with Disabilities.” They are partnering with the WSU Go Baby Go program, Project Lead the Way, and local organizations to provide mobility for children with disabilities through the modification of ride-on cars.” Perspective of a Department Chair¹⁹.

“It is a great pleasure for me to provide my strong endorsement of the Georgia Tech chapter of Eta Kappa Nu. Both as former Chair of the School of Electrical and Computer Engineering and now as Dean of the College of Engineering, I have witnessed first-hand the many diverse and significant activities of our Eta Kappa Nu chapter. Their contributions absolutely impact every ECE student. It is an important element of ECE student experience at Georgia Tech. I am happy to add a strong Dean-level endorsement of their activities, They represent a model for other honor societies in the College of Engineering and on campus to emulate.” Perspective of an Engineering Dean²⁰.

5. Summary

Academic honor societies promote excellence in engineering education. Tau Beta Pi was formed for engineering in general and similar societies have organized for specific engineering disciplines. Their collegiate chapters recognize students for high academic achievement, facilitate networking, promote community among those students, provide opportunities for service and service-based learning, and facilitate community engagement. The most effective and active chapters combine the recognition component with opportunities for networking, community, and service.

Among student organizations, the honor societies have the advantages of a membership process that identifies high achievers and of supporting governing structures that provide resources and encouragement for service and engagement. The effectiveness of chapters beyond their first function of recognition depends on chapter operations and institutional support. Some recommended best practices are

- Interest in the honor society's success from the administration and faculty,
- Active support from an advisor team,
- Intentional training for officers and committee chairs,
- Expectation of campus engagement, and
- Visibility on campus.

An effective honor society chapter has the potential for contributing to success of its student members and for impacts on department or school operations, student life, and community outreach. The appendix contains a list of selected honor societies in Table 3.

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Biographical Information

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Appendix: Selected Honor Societies in Engineering and Other Disciplines

Table 3. Selected Honor Societies

Discipline	Honor Society	Founding Year	Website
Engineering (General)	Tau Beta Pi (TBP)	1885	www.tbp.org
Electrical & Computer Eng.	Eta Kappa Nu (HKN)	1904	hkn.ieee.org
Mechanical Eng.	Pi Tau Sigma (PTS)	1915	pitausigma.net
Civil Eng.	Chi Epsilon	1923	www.omegachiepsilon.org
Chemical Eng.	Omega Chi Epsilon (OXE)	1931	www.omegachiepsilon.org
Metallurgy & Materials Eng.	Alpha Sigma Mu	1932	alphasigmamu.org
Biomedical Eng.	Alpha Eta Mu Beta	1979	www.alphaetamubeta.org
Industrial Eng.	Alpha Pi Mu	1949	alphapimu.com
Engineering Technology	Tau Alpha Pi	1953	taualphapi.org
Computing & Information	Upsilon Pi Epsilon	1967	upe.acm.org
Mathematics	Kappa Mu Epsilon	1931	www.kappamuepsilon.org
Physics	Sigma Pi Sigma	1921	www.sigmapisigma.org