

INCOSE Student Division Program

The International Council on Systems Engineering (INCOSE) established a Student Division program to advocate the value and benefit of systems engineering to university students. The program objective is to establish a student division, commonly known as a ‘university club’, at all universities offering engineering and systems engineering accredited programs. Each student division is sponsored by an INCOSE chartered chapter in the proximity to the University. The focus of each student division is to enhance the student education through mentoring the application of systems thinking, or system engineering, while mentoring their ‘capstone’, or ‘engineering experience’, under academic guidance.

The chartering of a student division by a local INCOSE Chapter establishes a three way framework to bring the benefits of INCOSE, and systems engineering, to the respective University and the registered students. When this alliance is coupled with local enterprises a 4-Way Benefit Model, as illustrated in figure 1, is established by adding practicing systems engineers into the student division.

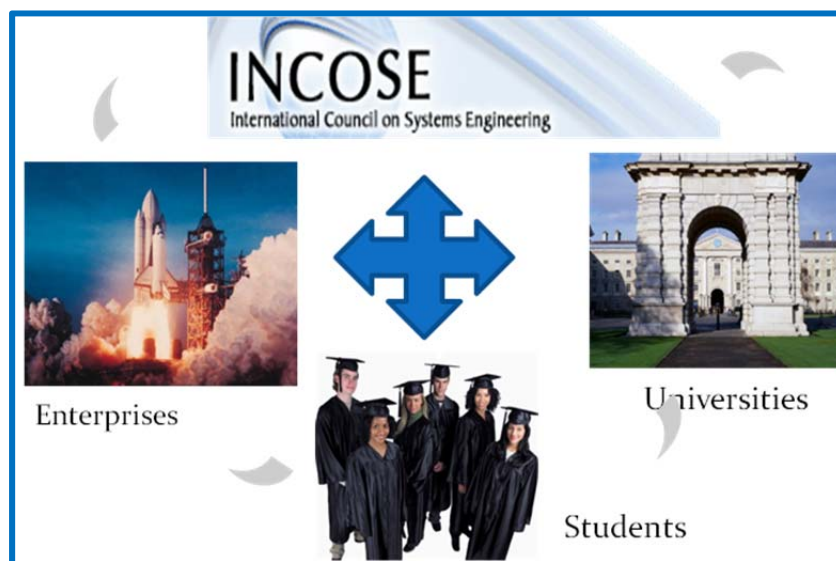


Figure 1: 4-Way Benefit Model

The difference between the ‘Student Division’ and each ‘student division’ has significance which should be addressed to prevent confusion. The ‘Student Division’ (SD) is the program initiative within INCOSE, whereas ‘student division’ (sd) is the ‘student club’ at the respective University. The establishment of student divisions recognizes the international associations with the local INCOSE Chapters, while ensuring these organizations do not contradict the legal restrictions in the INCOSE not-for-profit 503 (c) organization bylaws.

Governance of student divisions

Although an INCOSE Chapter sponsors a student division, the respective University and the INCOSE Chapter jointly govern each student division. The governing principles are established, and recorded, in a student division constitution developed in concert with the four stakeholders of the 4-Way Benefit Model

who are; the INCOSE Chapter Student Ambassador or Chapter Student Representative, the University Advisor, the Enterprise Liaison, and the Students who are represented by the four elected student officers. This constitution, found on the INCSOE Student Division website, is ratified, and approved with a representing signature, by all four stakeholders with the current student president representing all students. This constitution is maintained by the student division secretary for amendment as necessary with a signed copy provided to the INCOSE Chapter President as evidence for the INCOSE Chapter awards. A copy is also provided to the INCOSE Assistant Director of the Student Division for approval and archiving to the INCOSE website.

It is recommended that each student division form an executive committee established to oversee governance, operations, and to collaborate mentoring support for student division success. The student division structure is illustrated in Figure 2 with the student division mentoring network highlighted in blue.

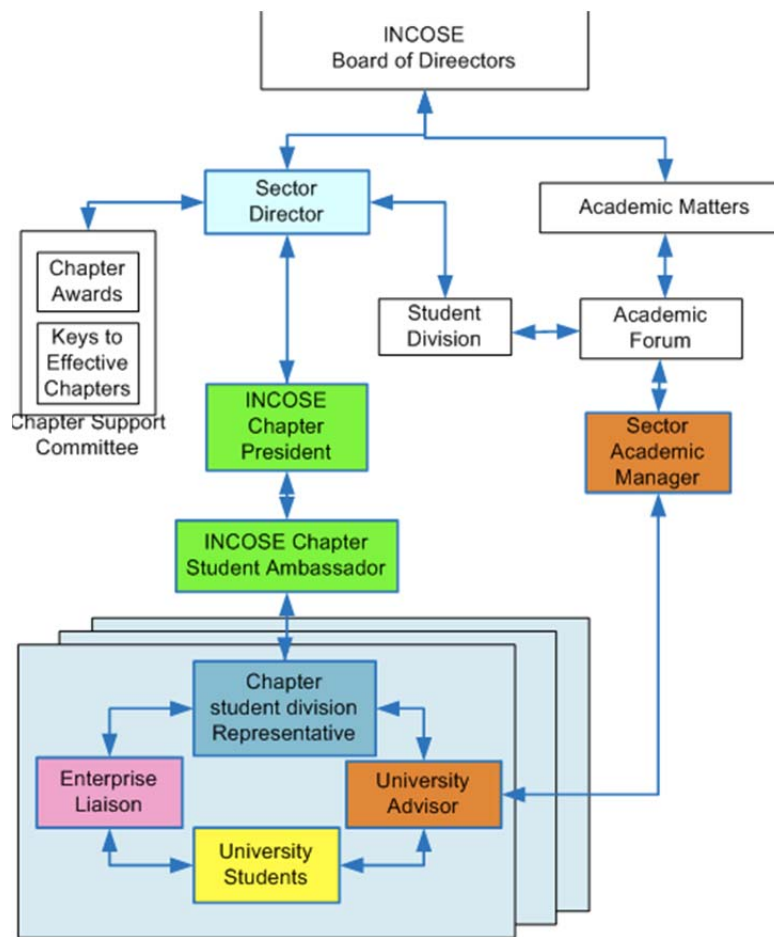


Figure 2: Student Division Architecture Mentoring Network

Value Propositions

Each unique student division should define their value propositions for the respective student division. This is a key activity of the Executive Committee. These Value Propositions provide the strategic and

tactical 'events' for the development and success of the student division. These value propositions are to be converted into success metrics with associated criteria, time lines for execution, and effective assessments. These value proposition, success metrics, and their assessment evaluation should be reviewed and documented annually by the student division executive committee. The results will be reported to the Student Division AD annually at the INCOSE International Workshop (IW). A suggested list of Value propositions are listed on the 'StudentDivisions' website inside INCOSE connect.

Academic Forum

The recent additional Student Division Program is a linkage of the student division Advisor to the Academic Forum. This addition is designed to enrich the Student Division program by adding the knowledge of academic programs and activities amongst the academic leaders to continuously improve system engineering programs, research, and advancements in the application of systems engineering within INCOSE.

Student Division Roles and Expectations

Due to the volunteer nature of INCOSE membership, the roles and expectations (R&E) within INCOSE, and the student division, are similar to the roles and responsibilities common for profit organizations, The significant distinction that expectations are the desired contribution from each member in the identified role. The R&E of the student division 4-Way Benefit Model stakeholders, as illustrated in Figure 2, are:

Chapter Student Ambassador:

This is an INCOSE membership position within the sponsoring INCOSE Chapter. This leadership position communicates between the sponsoring Chapter President and the student division stakeholders on the health, activities, and the opportunities available. The key expectations, but not limited to, for this role are:

- Collaborate with the Chapter Ambassador, if one exists, within the sponsoring Chapter as described in the Chapter by-laws.
- Advocate the benefits of developing a student division amongst the local universities.
- Lead the efforts to establish a unique student division at a University in concert with the INCOSE Chapter student division representative.
- Assist in the development of the student division value propositions, their conversion to success metrics.
- Collect, and collaborate the student division success metrics from all the student divisions within the Chapter region, and report the combined metrics to the Chapter President for reporting to the Sector Leaders.
- May assume the role as the Chapter Student Representative where possible.

Chapter Student Representative

This INCOSE member represents the sponsoring INCOSE Chapter at each unique student division. Honoring the leadership role of the Chapter Student Ambassador, this position is identified for those

occurrences where there are multiple student divisions sponsored by a single INCISOE Chapter. The key expectations for the Student Representative are:

- Communicate with the Chapter Student Ambassador on all matters of the student division.
- Represents INCOSE and the sponsoring chapter in the development of the value Propositions and the conversion to success metrics of the respective student division.
- Reports on the operation and health of the student division.
- A voting member of the student division executive committee.
- Provides systems engineering expertise to the student division as needed
- Mentor to students within the student division.
- Communicates special INCOSE events and opportunities to the student division.
- Other expectation may be identified as needed.

University Advisor:

Each student division shall have a university staff member overseeing the student division at the university. The key expectations for the University Advisor includes:

- Represents the University on the student division executive committee.
- An INCOSE member who presides over the student division during all meetings and activities
- Advocates the value of systems engineering and the student division across university departments.
- Oversee the governance of the student division according to the university guidelines.
- Provides collaboration and direction to the establishment and execution of student capstone projects.
- May be a member of the INCOSE Academic Forum, INCOSE Academic Council, or INCISOE Corporate Advisory Board.
- Collaborate with the Chapter Student Representative and Enterprise Liaison on matters of interest to the student division
- Other expectations to support the operation and health of the respective student division.

Students:

The University students are the focus of the INCOSE Student Division program. They represent the future engineers of America and INCOSE members. The key expectations for the students include:

- Elect Officers to govern themselves in accordance to their constitutional bylaws they create in accordance with University policy and INCOSE by laws.
- Elected officers must be INCOSE student members.
- Lead the student division constitution from concept through approval adapting the governance of the University and INCISOE as needed.
- Collaborate on the student division value propositions and the development of the success metrics.
- Guide the achievement, and sustainment, of the student division success metrics with the executive committee.

- Devise a fund raising program, approved by the executive committee, to become self sufficient.
- Collaborate with the INCOSE Chapter Student Representative to share meetings with the sponsoring chapter to maximize the mentoring and professional network opportunities.

Enterprise Liaison:

Local enterprises gain a significant advantage through collaborating with local universities and the students. These advantages include mentoring students on a continuous basis which leads to an understanding of the student aptitude to integrate systems thinking and problem solving skills for future considerations for the enterprise, identify enterprise project available to insertion into the student division capstone project, and encourage enterprise members to become mentors and INCOSE members. The enterprise liaison may be a current member within the sponsoring INCOSE Chapter who is a practicing systems engineer who recognizes the advantages of representing their organization within the student division. The key expectations for the enterprise liaison include:

- An INCOSE member and practicing enterprise systems engineer volunteering to support the student division in a leadership role.
- Election to the student division executive committee
- Assists the student division to find mentors to support the student division activities and projects.
- Provides communications between the enterprise, the Chapter, and the student division on activities and interests related all 4-Way Benefit Model stakeholders.
- Represents the Enterprise during the development, and conversion, of the value propositions to success metrics.
- Maintain a current status of the student division with the Chapter Student Ambassador

These roles are not exhaustive but express the expectations of the student division executive committee members to achieve, and sustain, the success of their respective student division.

Student Division Opportunities

INCOSE has several opportunities available to students. These include but are not limited to:

- Attending the INCOSE International Symposium(IS) as individual members at the reduced student rates where they can:
 - Present their research or attend presentations
 - Represent their University in exhibit booths
 - Have their posters displayed for review by the IS audience.
 - Participant as panelists
- Attending the INCOSE International Workshop (IW) as an individual where they can:
 - Participate in INCOSE Working groups
 - Present posters to working groups with permission by the associated chair person.
 - Attend the Academic Council with authorization by the AC chair person.
- Attend assorted Systems Engineering Conferences noted on the INCOSE website.
- Publish research in the INCOSE Journal or Insight Magazine.
- Network with international practicing systems engineers representing at all events.