A Podcasting Toolkit for Engineering Educators

Prof. Holly M Golecki, University of Illinois at Urbana - Champaign

Dr. Holly Golecki (she/her) is a Teaching Associate Professor in Bioengineering at the University of Illinois Urbana-Champaign and Department of Biomedical and Translational Sciences at the Carle-Illinois College of Medicine. Holly studies biomaterials and soft robotics and their applications in the university classroom, in research and in engaging future engineers in human-centered design. Holly received her BS/MS in Materials Science and Engineering from Drexel University and her PhD in Engineering Sciences (Bioengineering) from Harvard University.

Natalie M Taylor, University of Illinois at Urbana - Champaign

Natalie Taylor (she/her) is a PhD student in Bioengineering at the University of Illinois Urbana-Champaign. Her research interests include soft robotics and inclusive teaching practices, particularly for students with physical disabilities in laboratory environments. Natalie previously earned an M.Eng. in Bioengineering and a B.S. in Molecular and Cellular Biology from the University of Illinois Urbana-Champaign.

Evelyn Ochoa Arias, University of Illinois at Urbana - Champaign

Evelyn Ochoa Arias (she/her) is a Mechanical Engineering PhD student in Mechanical Science and Engineering at the University of Illinois Urbana-Champaign. Her research focuses on soft robotics, with an emphasis on designing accessible and human-centered technologies such as pressure-redistributing wheelchair cushions. She is particularly interested in rapid prototyping methods, image-driven modeling, and biomedical applications of soft actuators. She previously earned a a B.S. in Mechanical Engineering from the University of Illinois Chicago.

Colleen King, University of Illinois at Urbana - Champaign

Colleen King is a clinical assistant professor of journalism at the University of Illinois Urbana-Champaign, where she also serves as inaugural director of the Frank Center for Leadership and Innovation in Media. Prior to her time in academia, King was a television news producer, most recently serving as executive producer for ”The 11th Hour with Brian Williams” on MSNBC.

Mr. Saadeddine Shehab, University of Illinois at Urbana - Champaign

I am currently the Associate Director of Assessment and Research team at the Siebel Center for Design (SCD) at the University of Illinois at Urbana-Champaign. I work with a group of wonderful and talented people at SCD’s Assessment and Research Laboratory to conduct research that informs and evaluates our practice of teaching and learning human-centered design in formal and informal learning environments.

My Research focuses on studying students’ collaborative problem solving processes and the role of the teacher in facilitating these processes in STEM classrooms.

Wayne L Chang, University of Illinois at Urbana - Champaign

Dr. Wayne Chang is a teaching assistant professor in the Aerospace Engineering Department at the University of Illinois at Urbana-Champaign. He received his BS, MS, and Ph.D. in Mechanical and Aerospace Engineering from the University of California, Irvine.

Dr. Blake Everett Johnson, University of Illinois at Urbana - Champaign

Dr. Blake Everett Johnson is a Teaching Associate Professor and instructional laboratory manager in the Department of Mechanical Science and Engineering at the University of Illinois Urbana-Champaign. His research interests include experimental fluid mechanics, measurement science, engineering education, engineering leadership, and professional identity development.

Dr. Ashleigh Wright, University of Illinois at Urbana - Champaign

Ashleigh R. Wright, PhD is the Associate Director of the Institute for Inclusion, Diversity, Equity, and Access and Assistant Teaching Professor in the Department of Materials Science and Engineering at the Grainger College of Engineering. She is responsible for collaborating with college and departmental leaders and stakeholders to identify needs and priorities, developing and implementing evidence-based strategies, and measuring progress and effectiveness quantitatively against key metrics that promote diversity, equity, inclusion, and access to the undergraduate and graduate student communities. She also conducts research that analyzes trends, driving factors, barriers, and best practices to educate others and support organizational improvement. Prior to joining the University, Ashleigh managed and directed many training and pathway programs that support students from underrepresented backgrounds in STEM, and facilitated workshops that enhance the academic, personal, and professional development of students at North Carolina State University and Louisiana State University. She is a member of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and Delta Sigma Theta Sorority, Inc. She holds degrees in chemistry from Wofford College (B.S.), North Carolina Agricultural and Technical State University (M.S.), and Louisiana State University (Ph.D.).

Dr. Jennifer R Amos, University of Illinois at Urbana - Champaign

Dr Amos joined the Bioengineering Department at the University of Illinois in 2009 and is currently a Teaching Professor in Bioengineering.

A Podcasting Toolkit for Engineering Educators

The Podcasting Toolkit for Engineers described in this paper can be found at:
https://publish.illinois.edu/siipandshare/podcasting-toolkit/

Abstract

Engineering educators and students are managing increasingly complex information landscapes. Podcasts, adopted in other disciplines, such as medicine, offer a scalable medium for disseminating technical content, fostering professional development, and strengthening social connection. These factors are known to support teaching effectiveness and student belonging. Although podcasting is still gaining popularity in engineering education, preliminary studies indicate its potential to enhance motivation, support diverse learners, and enrich engagement with technical material. This paper presents a podcasting toolkit, prototyped over multiple iterations, to lower the barriers for faculty and students to adopt this medium in engineering education contexts. The toolkit provides structured guidance on podcast design, interview strategies, production, and assessment, supplemented by example episodes and strategies for integrating storytelling and personal, career context into technical and pedagogical content. Created by a multidisciplinary team of engineering and journalism instructors, assessment experts, and podcast producers, this toolkit is intended as a practical resource for instructors and researchers seeking to incorporate podcasting into teaching and scholarly communication. In addition to the toolkit, this paper details reflections from engineering faculty who have incorporated podcasting into their courses. By situating podcasts in engineering mindsets, we show how podcasts can support development of Entrepreneurial Mindset-based learning as well. This work contributes both a toolkit and a model for integrating podcasting into engineering education practice and assessment. Links to some of our early shows and episodes will be provided at the conference presentation and in the final paper.

Introduction

Engineering education aims to link classroom theory with engineering practice. Similarly, technical research benefits from connections between the laboratory and industry. These exchanges typically occur through news articles, workshops, and conference and journal publications [1]. However, these channels limit broad connections between academia and industry, leaving opportunities to disseminate impactful education innovations at scale. This led us to ask: How can engineering educators leverage user-generated content [2] and social connectivity to amplify the impact of educational innovations, industry perspective, and engineering innovations for the benefit of students, faculty and professionals?

Learners today must manage expanding knowledge bases and information sources [3]. Faculty developing innovative curricula often encounter a divide between research and classroom practice. Similar challenges have been documented public health and science communication [4]. Social networks and user-generated web content has enabled creative dissemination approaches, including podcasts [3]. Podcasts have the ability to foster social connection among listeners. Social connection among instructors can be an effective element of professional development and improved teaching [5]. Social connection can support academic success and sense of belonging for engineering students [6]. We recently found that in a

biomedical engineering classroom, students appreciated podcasts as a way to learn about career pathways and options [7]. Podcasts present an opportunity to disseminate research-based pedagogical practices and technical content while creating value for both faculty and students through audio storytelling.

Although podcasts are an emerging tool in education, some implementations have been reported in medical school, engineering education, and teacher professional development. In one study, over 90% of medical residents [8], graduate medical students reported choosing podcasts over other technical content [9], [10], [11]. Podcasts are also available for continuing medical education credits in some cases. Studies show that graduate medical students using supplemental podcasts outperform peers on exams [12], [13]. Podcasts have been evaluated as professional development tools. Research into teacher engagement with podcasts led to the development of the Educational Podcasts Motivation Scale [14] where motivational factors are grounded in the Uses and Gratifications framework [15]. Flexibility, social connection, and content learning were the strongest predictors of podcast for teachers [16]. In engineering education, technical engineering podcasts have been used by second language learners [17]. In a student-produced podcast, faculty found that participating students perceived improvements in their skill development and community building [18]. For students in technical courses, the Reduced Instructional Material Motivation Survey assesses engagement with educational podcast content [19], with high levels of motivation reported for podcast content [20]. This suggests that podcasts can benefit engineering educators by supporting student interest in disciplinary knowledge and community building.

These early studies can help educators who want to produce podcasts in and for their own courses. Articles report that podcast audiences prefer dialogue over monologue and report that personal anecdotes and humor enhance learning. In medical education, learners value credible content, concise summaries, audio quality, speed control and navigation [3], [8], [21]. Despite the reported value and these anecdotes, the task for producing a podcast can be daunting for engineering educators. We convened a faculty community of practice including members who had a desire to bring podcasts into engineering education but lacked experience doing so [22]. Together with guidance from faculty nationwide who have started their own podcasts, in the journalism department at our university, and workshops, we prototyped the podcasting process which led to development of three seasons of a publicly available podcast interviewing dozens of faculty about their education innovations on our campus. From here, we started up three course-based podcasts for students in engineering courses to learning about applications of technical content and their training. From this iterative process we (1) learned that podcasting is actually an approachable media platform, and (2) developed a podcasting toolkit with everything we have learned to help others new to the platform to create their own podcasts. At the end of the paper, we include faculty reflections and pilot studies using podcasts in classrooms, so that others interested in this platform can read about challenges and opportunities from their peers.

Methods: Developing an Engineering Education Podcast Platform

We convened a community of practice to advance excellence in engineering education through podcasting. To complete this, we assembled a team with diverse skills including experts in engineering education, assessment, journalism, and podcasting. We took an engineering approach to this project. We produced 18 episodes over 3 seasons of our first show, with each episode serving as an iterative design cycle. We documented our process and revised our strategy

with each episode produced. The result is a podcasting toolkit to reduce the barrier to recording for other engineering educators who see the value of digital storytelling in their classrooms but lack formal media training. We believe that podcasting is an approachable platform for novices. The goal of this toolkit is to provide the technical details that will make getting started easier.

Results: An Engineering Education Podcast Toolkit

Our podcasting toolkit is divided into the following sections, each a stage in the podcast production process:

PRODUCTION TEAM

The production team may consist of multiple people, including students or faculty with expertise in media. Our podcast hired student hourly employees, one journalism undergraduate who served as the show technician and a graduate bioengineering student who supported post-recording tasks. Production team responsibilities include:

SHOW TECHNICIAN: The show technician is responsible for ensuring optimum audio/video quality and flow during the recording of each interview. It is important that the technician is familiar with the hardware. The technician is also responsible for:

- **STUDIO RESERVATIONS:** Studio reservations are based on the availability of the studio, interviewer, guest and technician. Many university campuses have podcast studios available to reserve for free. Libraries and community centers are also increasingly offering podcast studios or equipment.
- **RECORDING:** When recording each episode, it is important that the microphone and audio levels are at optimal levels for the best quality product for post-production. When recording, the technician can request a question or response redo in the event of errors, awkward pauses, or "umms."
- **TRANSCRIPTION**: A transcript should be generated from the audio of the recording. Once the full transcription is available, indications of where the audio edits should be made, such as sections to be removed, errors, and other edits should be identified and marked in a word processor. This process is known as making "paper cuts." Paper cuts are then shared with the audio editor.
- **AUDIO EDITING:** Following the recording, the technician will do audio edits to make a cohesive episode that eliminates any pauses or mistakes from the recording. This can be done in any audio editing software include Audacity or Adobe Premiere.

- **WEBSITE UPDATES (OR POST-PRODUCTION):** A website is useful to publicize and house the podcast episodes. A member of the production team can be responsible for updating the website, creating a title of each episode with a brief description. Episodes can then be uploaded to the website and further publicized through various social media platforms.

> *How long does it take to make a podcast?* An estimate averaged over multiple podcasters is 4-6 hours per episode. This includes all members of your production team. The editing process is the longest. Building out a production team of students, faculty, and staff can help keep a rhythm.

SHOW PLANNING

- **TARGET AUDIENCE**: In planning a podcast, one of the first questions that must be identified is who your target audience will be. Are you aiming for fellow faculty listeners, students, or a mix of the two? Are you planning to serve an audience on your own campus specifically, or might you want to speak to a broader group of listeners nationally or internationally? How narrow is your focus on the topic? Defining who you'd like to cater to will help narrow down themes and guest selections.
- **TITLE**: What will you call your show? Consider the tone you want to strike and whether your name should be informational or catchy – or a combination of the two. Avoid long titles that are hard for listeners to search for in apps or online.
- **SEASON LENGTH**: Plan a "season" of episodes and determine the number of shows you'd like to produce. Are you covering a story arc that needs several installments? Want to feature a certain number of invited guests or cover a story or topic in entirety? Aim for an achievable length in your first season. Our group chose 8 episodes with three hosts interviewing eight guests.
- **RELEASE SCHEDULE**: When would you like to release your podcast episodes to listeners? Does a certain day of the week or time of the year make sense to your audience? How many episodes will you release at one time? Will you drop episodes weekly, biweekly, monthly?
- **GRAPHICS**: While this is an audio medium, you'll want a graphic look for your show to advertise it and to show a thumbnail image on apps such as Apple Music and Spotify. Consider whether you'll want to develop a logo and visual identity. In our case, we hired an undergraduate with graphic design experience to create our cover art.

TASKS FOR EACH EPISODE

- **ANCHOR/HOST/INTERVIEWER**: If your team shares duties hosting the episodes, identify who will take the lead hosting each one.
- **IDENTIFY POTENTIAL GUESTS**: Figure out your ideal interviewees. Who has the most expertise, the most experience, the most relevant information? Compile a list of potential guests and their contact information.
- **START REQUESTING INTERVIEWS**: Email or call your potential guests and request interviews.

  Template request:

  Dear [Guest Name],

My name is [Your name} and I am the host/producer of [Podcast title], a podcast about [your topic here]. We would be [delighted/honored/pleased] to interview you on an upcoming episode about [episode theme], given your expertise on this issue. The taping would last approximately [length of time] and we could record at [location in-person or virtual] at a time convenient for you. If you're willing, would you mind sending your availability in the next [few weeks/months/length of time]?
Thank you for your consideration!
[Your name here}

- **SCHEDULING:** What team members do you need for recording? Identify who will act as audio engineer and interviewer, and whether you need or want any other staffers on site for the taping. Coordinate schedules so all are ready and available. We found it was worth it to have a dedicated audio engineer (in our case a journalism student) in the room to handle audio details, so the host can focus on questions and conversation.
- **BACKGROUND RESEARCH**: Determine what you need to learn before conducting an interview and/or writing a script. Know your topic inside and out! Search for previous interviews your guest may have taken part in, research they have written and websites about their work.
- **QUESTION WRITING**: Prepare a list of questions for your interviewee. Consider the flow of the conversation as you order them: does your outline have a natural beginning, middle, and end? Do you cover all issues you'd like their expertise on? At the end, be sure to ask your guest if there was anything you did NOT bring up that they think is important – this can often lead to some interesting, new information.
- **INTERVIEW**: Greet your guest warmly and set up for your interview, ensuring any noisy items (jewelry, watches, mugs or cups, pens) are not near the microphone to create audio issues. Once you have confirmed you are recording, begin your interview. If you make a mistake, just stop speaking, take a breath, and restart your question or answer. You can edit out minor issues later. Once you've concluded your interview, be sure to thank your guest for their time and check the audio recording to ensure you have sound.
- **TRANSCRIBE & PAPER CUTS**: Generate a transcript of your interview and mark all areas that should be cut or edited. Share this with your audio editor.
- **EDIT AUDIO**: The audio editor should make all edits and cuts from the paper transcript and add any music or theme to the beginning and end of the episode.
- **FINAL CHECK**: At least one, but preferably two people should listen to the edited episode in full to ensure there are no more necessary edits. Once there is sign-off, the episode is ready to post.
- **WRITE TITLE & DESCRIPTION, THEN POST EPISODE**: Write an SEO-optimized title for the episode to post to Spotify/Apple Podcasts/etc. Also write a short description of your episode that includes the guest name, key highlights and any other relevant information for the show notes, such as links or time codes. Once these are set, post the episode. By copying your transcript (or parts) into AI, you can get help with these descriptions, just watch for technical information, acronyms, and names, these can get corrupted during transcription. Be sure to double check everything before publishing!
- **MARKETING/PR**: Promote your episode via social media, email, and any other means through your communications channels.
- **MONITOR LISTENS & FOLLOWS**: Follow the analytics to see the number of listens, shares, and other relevant information for each episode to help plan your future shows.

Planning Spreadsheet: Create a copy of this spreadsheet for planning guests for a season of your show.

Goal: 10 people to invite for interviews in Season 1

Name	***Email address***	***Topic or Project***	***Reason for asking (engaging speaker? cool/impactful project? interesting hobby? good story?) or other notes***	***Reached out (Y/N, Date)***
Guest 1	guest1@gmail.edu	Flipped classroom	Great storyteller	Y, 2025/10/01
Guest 2	Guest2@school.edu	Group dynamics	Popular instructor	N

INTERVIEW TIPS from a career producer (now Journalism faculty member):

- Determine your angle -> no "why is your siip project important", but a more specific question.
- Have the interviewees done interviews in the past? What are the outstanding questions?
- Avoid yes or no questions, ask questions that you cannot find publicly available information
- Create an outline so there is good flow. This makes editing easier
- Bury tough questions – Ask: Do we want to ask tough questions?
- Create a comfortable, conversational tone so the interviewee opens up.
- What's the issue?
- Where's the heat?
- What comes next?
- You can workshop questions with your team or listeners to make them more interesting
- Have a little chat before hitting record. Let the interviewee know you are starting to record. Have them say and spell their name.
- Don't be afraid of silence.
- Keep questions short
- Get best contact info.
- Best questions:
    - How do you define success?
    - How might you advise someone who...
    - What keeps you up at night?
    - What are you most proud of?
    - What happened next?
    - What was your biggest obstacle getting here?
    - What do you wish I would ask you? Why?

HARDWARE

RECORDING SETUP AND BEST PRACTICES

- Our podcasting team records audio using the RØDECaster Pro Podcasting Studio, located within the University television station. The room is acoustically treated with soundproofing to minimize external noise interference.

RECORDING LEVELS

- Avoid recording audio that is too loud (overmodulated), as distortion cannot be repaired in post-production.
- Audio that is too quiet can be amplified later by adjusting the gain or normalizing levels, but overly loud signals result in permanent clipping.
- Target peak levels are between –6 dB and –3 dB, which typically measures around two-thirds of the way up on the decibel meter.

MONITORING AND EQUIPMENT

- **Always** wear headphones during recording to monitor audio levels and detect unwanted background noise in real time.
- A microSD card is required for recording on the RØDECaster Pro. An SD card reader or adapter will be necessary for file transfer to a computer.

- Files should be named according to the convention:
  Year_Month_Day_LastNameOfInterviewee.wav
  (e.g., 2026_05_01_Smith.wav)
- Completed recordings are shared with the production team via any secure, shared cloud server.

ENVIRONMENTAL NOISE AWARENESS

- Before recording, remove or silence any potential noise sources. Common issues include:
  - Jewelry (especially bracelets or rings that may make sound when hitting the table)

  - Coats or bags rubbing against chairs (avoid hanging coats on inside of chair)
  - Computer keyboard or mouse clicks, as well as page turns
  - Try to remain as still as possible, as friction created through fidgeting or chair spinning may be picked up on the mic
  - Silence all devices
  - Air conditioning hums, vents or fans
- At the conclusion of each session, record 30 seconds of "room tone" or ambient silence from the recording environment.
  - If constant background sounds (e.g. light buzz) are present, capturing an isolated sample of that noise enhances the ability to filter it effectively in post-production.

POST-PRODUCTION WORKFLOW

- In our case, all editing and mixing are conducted in **Adobe Audition**.

INITIAL FILE PREPARATION

- Import the raw .wav recording into Adobe Audition.
- Apply "Speech Volume Leveler" to balance the loudness between speakers. Note this may amplify background noise.
- Use the room tone sample to capture a noise print:
  - Select the isolated room tone.
  - Navigate to: Effects → Noise Reduction/Restoration → Capture Noise Print.
  - Then apply Noise Reduction (Process) under the same menu to remove consistent background noise.

EDITING

- Work from end to beginning to prevent timecode misalignment during edits.
- To cut audio segments, mark in and out points as directed by the paper cuts and hit "delete" on your keyboard.
- The paper cuts will indicate a specific quote to use as an intro bite.
  - Mark in/out points for the desired section.
  - Copy and paste into a new audio file.
  - Label the file as LastName_Intro.wav (e.g., Smith_Intro.wav).

BUILDING THE MULTITRACK SESSION

- Open a new Multitrack Session in Audition.

- Organize tracks as follows:
    - Track 1: Main interview audio
    - Track 2: Intro sound bite
    - Track 3: Intro/Outro music
- Begin the timeline with the intro sound bite.
- Fade in intro music beneath the bite, allowing the music to continue for approximately 10 seconds before fading out into the episode content.
    - To apply a fade, select the audio clip and create keyframes along the white volume envelope line. Click to add markers, then drag them up or down to gradually increase or decrease volume, creating a smooth fade in or fade out.
- Use the same music to fade in and out at the episode's conclusion.

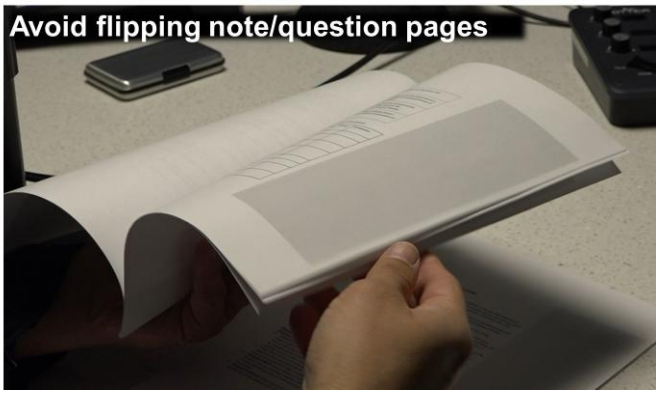
FINAL EXPORT AND REVIEW

- Once the episode is complete, mark in and out points at the beginning and end of episodes and export "Time Selection" as a Multitrack Mixdown (.wav) file.
- Upload the first draft to the shared Box folder labeled as "First Cut."
- Save all Audition session files and related assets in a labeled project folder for archival purposes.

RECORDING TIPS & ADVICE

- It is easiest to ask questions in the order in which you want them to be asked in the final podcast, so that production team can assemble the episodes more easily.
- Buzz and commotion might be good for showing embodiment of the education initiatives
- Superfluous sounds, such as fingers tapping on a desk and other fidgeting can be major distractions, and they may come from the interviewee just as well as the host. We like to advise keeping hands constrained in some way during the interview, such as hooking thumbs in belt loops, keeping hands in pockets, etc.

- If you have a note sheet to guide you through the interview, try to keep it in a format where you will not flip pages—all on one sheet, two single-sided sheets if more space is needed.



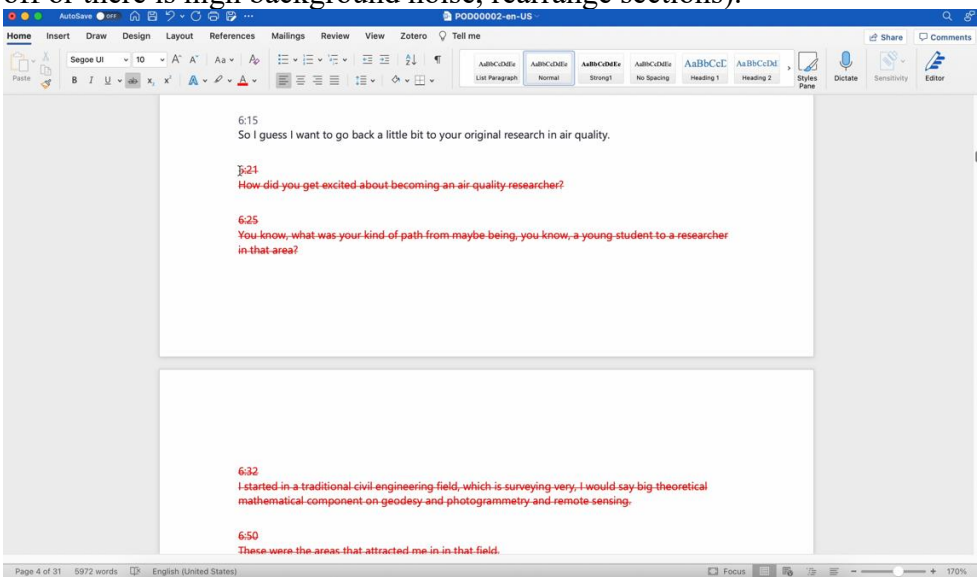
- Related to the note sheet tip: You want the interview to come across as very conversational, so there is a sweet spot between being over-prepared and under-prepared. Know the topics that you want to cover, but it may be best to keep a list of talking points or conversation topics on the desk during recording, rather than questions that you read word-for-word. You might also have a few sub-topics outlined under each talking point.
  - Before the recording, practice asking questions based on your talking points and sub-topics. You might even pre-write the questions on a practice sheet that you rehearse on your own before the interview, but plan to improvise the wording of the questions during the interview. If you share the interview questions with your interviewee beforehand, it should be the questions on the practice sheet.
  - Let your interviewee know that you may ask impromptu follow-up questions during the recording so that they are not surprised.
- Hydrate well on the day of the interview to prepare your voice for the recording session; advise your interview subject to do the same. Dehydrated speakers give off more mouth sounds.
- Use the restroom before recording and advise your interview subject to do the same.
- At some point during recording, get 10–15 seconds of silence so that the room tone can be sampled and removed in post. We usually record the room tone after wrapping up the interview, which also gives everyone a nice moment to gather their thoughts before saying goodbye and going their separate ways.
- While a dedicated studio with good acoustic treatments and a recording console is the preferred environment to do an interview, a teleconference service such as Zoom may be a serviceable option if both parties cannot meet in person. If you are conducting your interview over Zoom, Teams, or similar:
  - We find that the built-in AirPods microphone gives excellent sound quality in comparison to the ambient microphone of a laptop computer or a smartphone.
  - Instruct the interview subject to record in a quiet room and to stay seated there, rather than walking around, multitasking, or moving from room to room. This instruction is important so that they have a consistent room tone that can be subtracted in post from the entire interview with equal effectiveness.

POST PRODUCTION

- Before starting paper cuts (describing how the audio file should be modified) you should establish the desired episode length to guide cutting decisions. Do you want to delete awkward pauses, ums, or just big tangents? It is helpful to talk with hosts and production

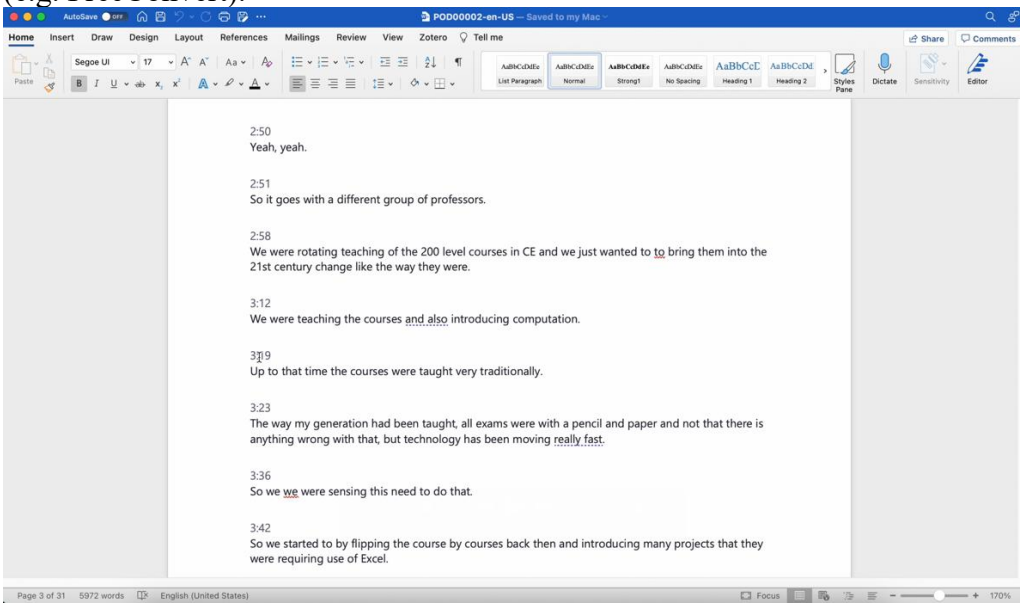
team and decide what main goals and ideas of the podcast are important and should be prioritized.

- You should transcribe the audio recordings using software of your choice. Microsoft Word Online will transcribe .mp3 files, and Microsoft OneDrive can transcribe .mp4 files. Other possible software includes Otter.ai (paid) and revoldiv.com (free).
- Once transcriptions are generated, listen to the audio file with the transcription file open and make paper cuts (e.g. cross out parts to be removed, comment if volume levels are off or there is high background noise, rearrange sections).



CREATING TRANSCRIPTIONS

- Video (.mp4) files can have transcriptions generated when uploaded in OneDrive (under video settings). These can be opened in software like Microsoft Word for editing. Free converts of almost any file type to .mp4 can be done through many different free websites (e.g. FreeConvert).



PODCAST QUALITY CHECKLIST

We previously published a version of this podcast quality checklist [7]. Here we provide our latest version:

Dimension	Met	Partially Met	Unmet	Justification
Quality of Content				
The Podcast episode covers a topic that is relevant to the target audience				
The Podcast episode includes information supported by research or reliable sources				
The Podcast episode maintains a clear structure and flow that makes the content easy to follow				
Quality of production				
The audio in the Podcast episode is clear and free of background noise, echo, or distortion				
The volume levels in the Podcast episode are balanced between the host(s) and the guest(s)				
The Podcast episode have smooth transitions between segments with no unnecessary silences or interruptions.				
The Podcast episode includes music or sound effects that enhance rather distracts from the content.				
The Podcast episode includes polished and smooth transitions.				
Host and Guest Performance				
In the Podcast episode, the host take actions to connect and build rapport with the guest.				
In the Podcast episode, the host asks thoughtful questions and follow up questions.				
In the Podcast episode, the host asks critical follow up questions.				
In the Podcast episode, the host gives the guest an uninterrupted space to express ideas.				

In the Podcast episode, the guest offers unique, insightful ideas.				
Listeners' Engagement				
In the Podcast episode, listeners are invited to interact by asking questions or leaving comments or implementing actions or connecting through social media.				
In the Podcast episode, listeners' are encouraged to share the episode with others.				
In the Podcast episode, listeners' are provided with options to use the content				
Originality and creativity				
The Podcast episode includes new takes and perspectives on the content presented				
The Podcast episode follows a creative structure that makes it stand out.				
Consistency and frequency				
The length of the Podcast episode is appropriate i.e. focused without being rushed or drawn out.				
The Podcast episode follows the release schedule				
The Podcast episode aligns with the quality and style of the previous episodes				
Accessibility				
The Podcast episode is available on multiple platforms.				
The Podcast episode provides a transcript/subtitles				
The Podcast episode presents a clear summary or description for listeners to preview				
The Podcast episode includes language and vocabulary that is accessible to the audience.				
The Podcast episode is easy to download				

Production progress: With many team members contributing to the overall process, we suggest Creating a shared copy of the spreadsheet below for tracking episode production.

Ep #	Guest (Host)	Recorded	Transcript	Paper Cuts	First cut	Feedback	Final cut	Posting Date
1	Jane (John)	x	x	x	x	x		3/15/26
2	Guest 2 (Host 2)	x	x	x				

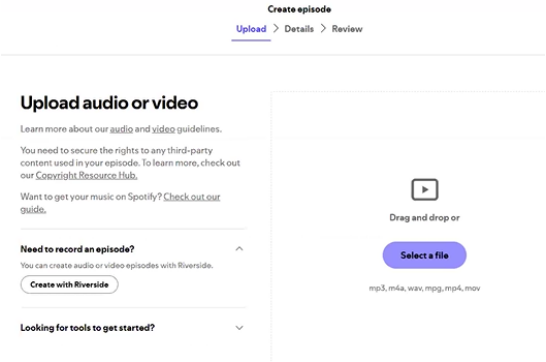
POSTING YOUR EPISODE ONLINE

Once you have a completed audio file of your episode, it is time to post it online! Posting on podcasting platforms is free. Posting can help you easily share your episode with a link, enable listening on apps, and track audience engagement.

- **RELEASE SCHEDULE:** Create a copy of the spreadsheet below to track release dates and episode titles and descriptions.

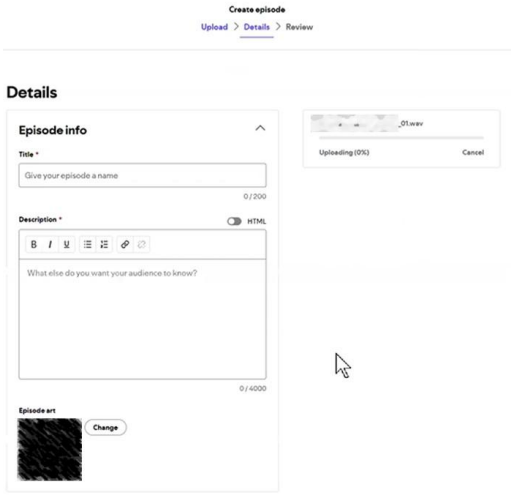
Episode	*Release Date*	*Guest (Episode Title)*	*Episode Title*	*Episode Description (2-3 short sentences and links promised in the episode "We'll include this in the show notes")*
1	Month/Day	Guest 1 (Topic 1)		
2	Month/Day	Guest 2 (Topic 2)		

- Here are the steps to post your podcast online:
- Create accounts. You will need accounts on:
    - Spotify for Creators (https://creators.spotify.com)
    - Apple Podcasts Connect (https://podcasters.apple.com/)
- How to post an episode:
- Upload to Spotify for Creators (https://creators.spotify.com)
    - Upload audio file

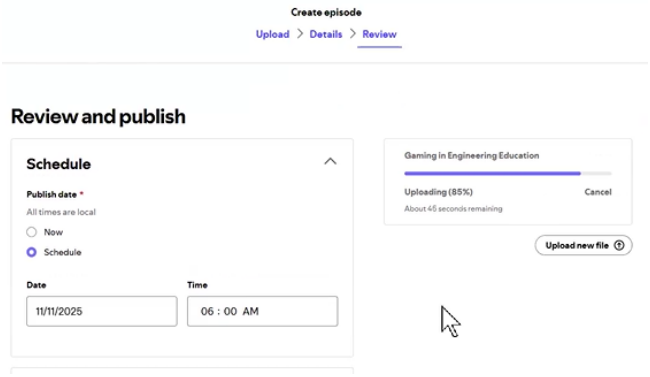


    - Insert episode description
        In every description we include:
        Keep the conversation going!
        Guest: [name, linked]
        Host: [name, linked]

Engineered by: [name, linked]
Produced by: [name, linked]
[Links to website and/or socials]



- Schedule the episode (time/date)



- Save

- The first time you post, you also need to add the RSS feed to Apple Podcast Connect. After the first episode it regularly posts on Apple for you.

Once the episode is LIVE:

- Add a link to your website.
- Send an email to the interviewee with website, spotify and apple links to their episode.
  - *Tip*: Shows do well when guests promote it.
- Create a post for social media.
- Email team.
- Listen, like & subscribe!

ASSESSMENT AND EVALUATIONS

Are you ready to use your podcast in the classroom? Here are some suggestions to assess their value in engineering classrooms:
When you develop a podcast, you can evaluate its quality. The quality of a podcast can be determined by the dimensions shown in the following table:

Dimension	Possible Metrics
Quality of Content	relevance, accuracy, depth, and clarity of the podcast's information or storytelling
Quality of Production	sound clarity, editing, and audio balance
Host and Guest Performance	how they communicate, engage, and maintain the interest of the audience.
Listeners' Engagement	calls to action, resources, etc.
Originality and Creativity	uniqueness in terms of format, approach, and perspective
Consistency and Frequency	regularity of episode releases and the adherence to a consistent schedule, as well as the appropriateness of episode length for the content.
Accessibility	ease with which the podcast can be accessed across platforms, and whether it offers features like transcripts or translations for inclusive listening.
Impact	influence on its audience or field, including listener feedback, and contribution to relevant conversations or trends.

One way to assess the impact of the podcast on listeners' learning is to capture the impact of the podcast on the listeners' 3Cs (curiosity, making connections, creating value) and the habits of the 3Cs. In the context of listening to a podcast, listeners can become more curious about the topic discussed, can make connections between the content of the podcast and their own existing knowledge and actions, can make connections with the podcast participants and/or listeners and can become more curious about the topic discussed and making content connections, and networking will eventually lead to creating more value in what they do.

To capture the impact of the podcast on the 3Cs, a pre and post test can be developed. It should be accompanied by reflection questions. Below is an example of pre and post it items and reflection question to capture the impact of the podcast on learners' curiosity, specifically, the inquisitive habit.

Mindset	Habits	Definition	Pre Test (baseline) 1 = Strongly Disagree; 5 = Strongly Agree	Reflection Questions per Habit	Post Test (percieved impact) 1 = Strongly Disagree; 5 = Strongly Agree
Curiosity	Inquisitive	Explores alternative or disruptive views of current or accepted solutions.	I actively ask questions to better understand unfamiliar situations.	What questions did the podcast spark for you about engineering or the world around you?	The podcasts encouraged me to ask new questions and explore unfamiliar ideas.

BUDGET

Podcasts are generally very low-cost to produce. However, given the time and many steps required to put together episodes, we provide here a list of potential costs that may come up or help to make production easier.

- **Assistants:** Hiring graduate or undergraduate assistants help with recording, editing, and post-production.
- **Graphics:** Canva or even some AI tools are free-to-user platforms to create cover art. However, hiring a graphic designer or graphic design student is another way to create cover art.
- **Incentives:** Surveys, interviews, and focus groups be ways to collect feedback on podcasts. Incentives for participation in these evaluations can increase participation or may be required by university IRB offices.
- **Small equipment:** Smartphone microphones do work for audio recording, but headphones, additional microphones and storage chips may be needed.

Case studies: Using podcasts in bioengineering and civil engineering classrooms

To date, we have experimented with using podcasts in two courses in our college of engineering. We recently reported on the use of publicly available podcast episodes (not recorded by our team) in a bioengineering course [7]. Findings showed that students enjoyed podcast episodes that connected course content [23] and career exploration. Students cited appreciating hearing about career trajectories that were unfamiliar to them and hearing from professionals who took a similar path to their planned careers. We reflected on this feedback and see podcast episodes discussing course content through the voice of industry professionals who use those skills and techniques in their jobs is a unique and potentially impactful way to create value for students in engineering courses.

Inspired by our efforts developing the toolkit and this pilot, two members of our team who co-instruct an upper-level civil engineering transportation course, recorded their own podcast episodes and assigned the episodes to students. The faculty created the podcast with the intention of supporting learning objectives, exposing students to grad school and research, and teaching them more about potential careers and activities in transportation engineering. The podcast assignment involved listening to two episodes. Students then took a four question, technical quiz

(randomized from a set of 20 questions so each student has different questions). Students scored highly. Students also completed a survey about the podcast. Because the findings are used for course improvement, the protocol recieved IRB NHSR determination. Preliminary results were encouraging. When prompted to respond to "One new thing I learned listening to the podcast is..", students commented on faculty hobbies, career paths, and misconceptions about graduate school that were cleared up. One student said, "I enjoyed the tips provided on how undergrads can put themselves in a good position to apply to the grad school program of their choice." Another student said, "One thing that I have learned from the podcast would have to be the amount of work that goes into becoming a professor. I did not know that they had gone through a doc and post doc program." While the study is preliminary, it encouraged our team to think about podcasts as a way to humanize faculty and provide career advice through storytelling. We are encouraged by this pilot and look forward to more classroom implementation in the future.

Outcomes and Future Directions

Podcasting may be a more digestible medium for presenting course content than a traditional lecture. Some students may find it to be a useful supplement to the other teaching content that an instructor uses. An engaging podcast conversation may help to turn course content into something that a student can consume during other moments of their day-to-day life, such as taking a walk, doing a workout, or some mundane task such as cleaning their dorm or apartment. It may be interesting to study how neurodivergent students engage with course content via a podcast, for example.

It can be easy to overlook the potential for historical conversations to occur in a podcast, especially in an academic institution. Podcasting creates an archive of primary-source conversations with key developers of new technologies in a permanent and publicly-accessible record. When we engage in a podcasting conversation with someone who is doing cutting-edge research, we should be humble to the fact that the future is unknown and this person may be the creator of some brilliant innovation that changes the world. It represents an opportunity to highlight the work done by the students, alumni, and faculty members in your institution, whether the focus of their work is pedagogical or disciplinary research. Similarly, if a visiting speaker comes to campus to give a seminar, they could be asked to sit and record an episode to maintain that conversation over time.

While podcasting is an exciting and relatively low-resource platform for digital storytelling, there are still challenges to implementation that exist. There is a significant labor overhead to recording and producing episodes. There are also a wide array of technologies, software and hardware that are used, each with its own learning curve and intricacies. Our team is particularly lucky to have a journalism faculty member and student on the team. In general, our university has many resources that make podcasting accessible and even easy. From free-to-use podcast studios, licenses for transcription and audio editing software reduce potential costs. Our team struggled when our university did not renew a license for Adobe Audition this semester. This required us to purchase student licenses or use a VPN to connect to lab computers.

In the classroom, assessment is an open challenge for our team. With limited validated surveys and large class sizes, quantitative data seems like the only option. Advances in LLM qualitative research tools enable analysis of large data sets from open response questions in large lecture classes or rich contextual data from focus groups. Students in classes may prefer podcasts, but if podcasts are supplemental, tracking their use is a challenge. Lastly, with new web and education accessibility requirements, accurate and compliant transcriptions are important to

incorporate. Altogether, despite these challenges, our team has produced three seasons of an engineering education podcast and is in the process of producing three new podcasts for classes, using the podcast toolkit included in this paper.

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