

PROPOSING CINEMA STUDIES AT WPI  
An Interactive Qualifying Project Report  
submitted to the Faculty  
of the  
WORCESTER POLYTECHNIC INSTITUTE  
in partial fulfillment of the requirements for the  
Degree of Bachelor of Science

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1. cinema
2. film
3. 16mm

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## **Abstract**

The goal of this project was to preserve WPI's 16mm film collection as well as gauge student interest in a WPI film studies program. We discuss the method we used for transferring the seventy-six films to digital video cassettes (DVC) and the problems we encountered. A student survey was used to measure interest in a film program, and the results are analyzed. We also explored the copyright issues involved and possible solutions.

## **Executive Summary**

This project “Proposing Cinema Studies at WPI” is a continuation of a 2004 MQP by Jonathan Naumowicz. He determined that there was a critical mass of faculty that would support a new Film and Imaging Program. He also determined the most utilitarian method of preserving WPI’s collection of 16mm film: projecting the film onto a white screen and recording the projected image with a digital camcorder.

This project focused on transferring WPI’s film collection to a digital format, as well as determining the level of student interest in a film program. WPI’s film collection was almost lost when the library decided to throw out the reels because they occupied too much room. Prof Quinn rescued the collection of films and found a place for them in a room in Alden Memorial. Many of these films are historically important, giving the viewer a glimpse into the past. A few of these films are very rare, such as “The Battle of China”, which was pulled by the U.S. government as its depiction of China was not significantly defamatory. To get a proper understanding about film, our group performed a literature review on the history of film.

To transfer the films, we needed dark room where we could store expensive equipment and perform the actual recording process. Helen Shuster graciously lent us the private use of one of the study rooms on the first floor of the library. There we set up a white screen and the 16mm projector. A digital camera was then lined up to record the projected image on to a digital video cassette (DVC). The sound was hardwired straight into the camera to eliminate background noise and maintain audio quality. Using this process we transferred seventy-six films totaling fifty one hours.

The second goal of this project was to determine the student interest in introducing a film program here at WPI. We formulated a survey and sent it out to the student body. In total, 214 students responded of which sixty-four percent showed some degree of interest in a film program. Of those that were interested, eighty percent favored doing a sufficiency in film, while only fourteen percent favored a minor and five percent favored a major. However, it should be noted that the introduction of a film program will draw a new student demographic to WPI, further diversifying the school.

We encountered some minor setbacks during the transfer process. The most common problems with the films were shakiness, flickering, and chemical decomposition. Less common problems included torn films, damaged sprocket holes, and incorrect framing. Damaged sprocket holes prevented us from transferring a few of the films. Fortunately, all of these films, with the exception of “Pickwick Papers” were previously transferred to VHS; “Pickwick Papers” will need to be professionally transferred or purchased.

As we neared the end of the project, we were made aware of certain copyright issues pertaining to films we were transferring; issues we were previously assured did not exist. We have two separate courses of action which provide seemingly adequate solutions to the problem. The first solution simply involves consulting WPI’s lawyers on certain laws. The second solution would require us to seek permission from all copyright holders.

Once the copyright issues are worked out, the next step in the process is to transfer the films to a distribution media such as DVD or online streaming. As part of our recommendations we suggest for the next IQP group to conduct follow up interviews of

interested students and faculty. Students should research film programs at surrounding schools and other technical schools to try and build a syllabus for a film program at WPI. Once a film program has been established, it would be beneficial to advertise the new program and bring back a film series similar to CinemaTech.

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## **Authorship**

We shared equally with the writing and editing responsibilities.

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## **Introduction**

WPI has long been known for its unique curriculum, which combines the technical rigor of math, science and engineering with the diverse culture of humanities and arts. To further the unique educational experience offered at WPI, a new interdisciplinary major has been formed: Interactive Media and Game Development (IMGD). This new program will further fuse the two parts of the WPI curriculum and reinforce the idea that they are interdependent and necessary to be productive in today's work force.

Film and cinema studies looks to play a significant role in this new IMGD major program. It is the next step for the program, once the game development concentration is fully established and running.

## **Necessity of Film**

Is WPI's film archive worth saving, and why? WPI's film archive includes abstract, animated, silent, war, short, and motion picture films dating back as far as the early 1900's. A few of these are war propaganda or documentaries and have significant historical importance. Some of the films, in particular the abstract and animation movies, are very artistic and can be very interpretive.

While many regard film as solely for entertainment purposes, a good portion of the films that we are salvaging played a much more important role. In the days of WWII, films were often used as propaganda, attempting to rally support for the war effort:

“The problem in 1942 was how to turn the youth of a nation, so recently and so predominantly isolationist, into a fighting force not only effectively trained and equipped but armed, too, with the conviction that his country's entry into a world war was not only just but the inevitable answer to serious wrongs.”  
(Manvell, 168)

These films can act as an aid and a useful resource for students studying WWII history. The “Why We Fight” series can give students a first hand look at actual war footage from WWII, as well as real propaganda from the government. Earlier films can give students a look back at life in a different time. Students can see how people dressed, lived, interacted and talked throughout history. For instance, the film “The Trial” shows people’s fear of communism in the 60’s.

Some of the films in WPI’s archive have significant historical value. As an example, the film “The Battle of China” did not defame China and its people enough in the eyes of the U.S. military. As a result, it was not shown to the public, and was pulled from circulation (Manvell 174). WPI has one of the few copies of this film still in existence.

“Uncle Tom’s Cabin” is a typical example of a short, interpretive film in WPI’s archive. Movies such as this can give students a look at art through a medium other than what they are usually exposed to. Different thematic elements, directing styles, imagery, and lighting work together to produce a final visual product.

The primary chemicals involved in these older films are inherently subject to damage. Proper care for the films can prolong their life, however it cannot protect them forever. As the films get older, especially without proper care, the rate of decay begins to increase. Therefore, the films need to be preserved now, usually via medium transfers; if they are not preserved soon, they will be lost forever!

## **History of Film**

The concept of capturing a moving image was not invented, but rather an evolution of still photography. According to San Diego University’s Professor Steve

Shoenherr, a few photographers in the late 1800's were credited with experimenting with the concept of a moving image. The most notable of these is a French photographer named Nadar who, in 1865, took a picture of himself from 12 different angles (seen below). By putting all the photos in order, and viewing them in order, it created the illusion of motion.



Figure 1: Nadar's Self Portrait

Next in line was Etienne-Jules Marey, who was influenced by Nadar's self portrait. Marey used a device called a phenakistoscope (a deceiver + '-scope') to order multiple images that were taken. By spinning the wheel, Marey was able to create a moving image of a man walking (Shoenherr).

The first credit of any motion photography in the United States was in 1872. In this situation, photography was used to solve an argument. Scientists of the time debated whether or not, at any point, a running horse had all four hoofs off the ground. This is where a photographer named Eadweard Muybridge came in. By taking still photographs at multiple positions along the track, he was able to capture the motion of the horses. Then, in viewing them in order, one was able to see that there was a point in which the horse was entirely airborne. Perhaps more importantly, Muybridge is also credited with

the invention of the Zoopraxiscope, which could be considered a forerunner for today's cinema projectors. The purpose of the device was to display sequences of 24 images in rapid succession, which gave the illusion of a moving image (Shoenherr).

Before 1889, the materials necessary for photography were cumbersome. Plates, called daguerreotypes, were the only method for recording the image. These plates had to be the size of the final image which made it difficult to record multiple images at a fast pace. In 1889, however, George Eastman, the founder of Kodak Co., patented and released the first rolls of celluloid film. This provided a much smaller medium, making it significantly easier to record multiple images in a brief time span (Shoenherr).

The next big advent for the movie industry was the Kinetograph camera. Patented by Thomas Edison in 1891, the Kinetograph camera had a turn crank and used celluloid film with sprocket holes to record images in motion. In addition, Edison recorded audio at the same time to be played back with the films. The first film he took was of an assistant in his lab, Fred Ott, and was entitled "The Sneeze." These films were used in "peep-shows," where people paid twenty-five cents to see one of these brief films recorded by Edison's camera (Shoenherr).

On December 28<sup>th</sup>, 1895, Louis and Auguste Lumiere opened the Vaudeville Theaters in Paris, France. The projectionist operated the camera by feeding 35mm film through the camera and turning a hand crank. The film had one sprocket hole per frame, and was intended to be played back at 16 frames per second. The first of its kind to be introduced in the US was Keith's Union Square Theater in the early 1900's (Shoenherr).

This is the point where film really started to take off. In fact, one Paris studio, alone, made 500 films in a span of 16 years (by 1913). This sudden popularity of film

brought rise to nickelodeon theaters. The films shown in these theaters were targeted at members of the working class. The theaters themselves were located mostly in urban locations, in a storefront or strip mall type environment. This started in 1905, and by 1910 approximately 26 million attended 10 thousand theatres each week! This phase, while short lived, brought about organizations such as the Motion Picture Patents Company (in 1908), and the National Board of Review (in 1909). The nickelodeon phase began to die out in 1915, but not before first giving rise to independent films (Shoenherr).

As stated in an exhibit by the IEEE's virtual museum, one of the biggest advancements in film and cinema in the 1920's and 30's was the addition of sound to film. These "talkies," as they were called, quickly took hold with audiences around the world and almost entirely replaced their silent predecessors. Though talkies and their equipment spread through theaters world wide with great speed and acceptance, the development and perfection of combining the visual attraction of film with the acoustical aesthetics of sound was by no means a quick and simple addition (IEEE).

Some of the earliest attempts to combine sound with movies were made by the Frenchman L  on Gaumont in 1901 and the German Carl Laemmle in 1907. Both men used phonographs to playback sound in theaters. This method was adopted and modified by Thomas Edison, who designed the first Kinetophone. The Kinetophone was a combination of Edison's projector and phonograph, which he connected by a series of strings and pulleys to keep the sound in time with the film. With the phonograph behind the theater screen and the projector in its booth in the back of the theater, primitive talkies had been born. One of the biggest problems with this system was that the picture on the screen and the sounds being heard did not always match up quite right. This led to

limited enthusiasm by audiences who became annoyed by sounds that appeared too early or too late (IEEE).

Another method of adding sounds to the film viewing experience up through the early 1920's was to have pianists in the theaters, to play along with the film. AT&T had a better idea. AT&T's Bell Telephone Laboratories, in 1922, created and demonstrated a "better mouse trap" from Edison's phonograph/projector combination. This new Vitaphone still used a projector and phonograph discs, but they had made great improvements to how the two worked together. They discovered that an 11 minute film reel was as large as an 11 minute phonograph disc and took advantage of this matching. However, there were still many problems with this new system. The phonograph disc could still skip and become offset from the film. Also, the idea of editing a disc after its completion was not particularly viable (IEEE).

This method was also short lived and was soon replaced by a better technique. In the mid 1920's, Lee De Forest was the first to demonstrate a workable model of movies with sound placed directly onto the film. Rather than using the groove system that was applied to the phonograph, De Forest used optical recording. In this process, an optical recorder was used to turn sound into light and then photograph this light onto a narrow strip along the edge of the film. A light detector is then used to take the recorded light strip and generate an electrical signal, which could then be sent as sound through speakers. Thus, a new sensation in the film industry was born (IEEE).

This new sound recording system was much more stable than its predecessors and became the major driving force in the development of motion picture talkies. Interestingly enough, the film that was called the first talkie was, in fact, made with the

projector and phonograph disc system used by AT&T. “The Jazz Singer” is remembered as the first talkie because it was the first feature film that incorporated sound. It was not, however, the first talkie ever made (IEEE).

As maintained by Martin Hart, traces of color in film can be found as early as the 1890’s. The simplest way of adding color was hand coloring the films. Stencils were created for each frame, and separate stencils had to be created for different colors. No more than 6 colors could be added to black and white base film using this method. Hand coloring continued to be used into the early 1930’s, even though better methods had developed by then. One of the biggest drawbacks to this was its intensive labor requirements, and it grew more impractical as films became longer and more popular (Hart).

The additive color system was next. This process involved using black and white film records of the color elements which were projected through the appropriate color filters. The main problems with this technique were excessive grain and reduced light transmission caused by the color filters. The first additive color systems used only red and blue filters to create a picture, but soon moved to blue and green, as well as red and orange (Hart).

In 1915, the two color Kodachrome was introduced. This was the first subtractive color process. In the subtractive color process, the camera records different colors on separate frames using two negatives. The color negatives were on either side of the 35mm film, and treated with chemicals to produce a blue/green on one side and red/orange on the other. The end result was one composite color record for each frame.

The subtractive color process was much more practical and easier to project than additive systems of the time, as it could be handled the same as a black and white film (Hart).

Cinecolor and Technicolor were the two most successful two color system and were used throughout the late 1920's. Cinecolor did not have very good color accuracy, but created a more realistic image. In 1948, Cinecolor introduced a three color process. The emergence of three color materials made this possible. Cinecolor, however, could not match its rival, Technicolor. Technicolor started out with two-color additive system back in 1916. In 1922 this system was abandoned in favor of a 2 part subtractive system (Hart).

Another major development in film history is the establishment of the movie studios. Most major studios have their roots in the nickelodeon era of cinema. Many theatre owners whom branched out into film making are the founders of the famous film studios. These studios would really come into power during the roaring 1920's, and dominate almost every aspect of the film industry until 1948, when the US government declared them an illegal monopoly (Dirks).

In the 1910's film studios were starting to be established and produce films. By the 1920's most film studios were located in or near Hollywood or New York. Tom Dirks explained it well on his website, "The basic patterns and foundations of the film industry (and its economic organization) were established in the 1920's. The studio system was essentially born with long-term contracts for stars, lavish production values, and increasingly rigid control of directors and stars by the studio's production chief and in-house publicity departments" (Dirks). As the industry rapidly grew, the studios took control over almost every aspect of the motion picture industry in order to maximize



profits: production side, distribution side, and even most of the theaters. “By 1929, the film-making firms that were to rule and monopolize Hollywood for the next half-century were the giants or the majors, sometimes dubbed The Big Five. They produced more than 90 percent of the fiction films in America and distributed their films both nationally and internationally” (Dirks). ‘The Big Five’ included Warner Brothers, Famous Players (later known as Paramount), Radio-Keith-Orpheum Pictures, Loew’s Inc. (Metro-Goldwyn-Mayer), and Fox Film Corporation (20th Century Fox). Each studio specialized in different genres to differentiate themselves from their competitors (Dirks). The largest output of American films took place during the 20’s and 30’s averaging a staggering 800 films a year. In 1948 a legal case developed (U.S. vs Paramount) which put a halt to studios controlling theaters (Dirks).

The First World War brought about a temporary stoppage of European cinema production due to a scarcity of resources which had been diverted towards war efforts. Ultimately, this led to a decline in the capability of European cinema to compete with its American counterpart and “[it] never recovered its dominance in the marketplace” (Dirks). This hole in the market allowed American film industries to push into Europe and create a dominant cinema force, which would then rejuvenate the American cinema, allowing better quality films to be produced and new technologies to be developed and tinkered with (Dirks).

One such development occurred in 1914; there was a marked shift from the “nickelodeon” style of showcasing films in storefronts and other small locales to the “grand cinema houses” that led to more standardized movie theaters (Dirks). The first

such structure, The Strand, was erected at Times Square in New York City and was designed to seat 3,300 viewers (Dirks).

The Second World War had a much greater impact on cinema than the first. In fact, there was a short-lived investigation by the Senate in 1941 that explored the likelihood that producers were purposefully making films in a manner that would force the United States to become active in WWII (Dirks).

The connection between cinema and WWII is very prominent, especially as far as government involvement is concerned. Many restrictions and rules were made by the Office of War Information between 1942 and 1943, including a list of seven questions that had to be considered before producing a film (Dirks). Numerous other restrictions were implemented, such as a limit on expenditure for sets and a strict dress code. Regulations were also passed by the Office of Censorship that barred films from being sent abroad if they contained elements of discrimination, especially racial, if they over-glorified the United States, or if they made the United States' allies seem particularly imperialistic in their behavior. At the war's conclusion in 1945, the U.S. government removed the boundaries that it had set on the import/export of films, and eliminated its restrictions on outdoor lighting and raw film stock (Dirks).

Film attendance saw a decline throughout the 1950's due to the spread of free television. Instead of attending a movie, people would stay home and watch TV. By 1951, the first nationwide TV Network was born (NBC) and just a few years later, fifty percent of all households in the U.S. had at least one television (Dirks).

The spread of television forced the movie studios to find new ways to make money. Many studios began to produce more hours of film made for television than

feature films. Some studios also sold rights for their pre-1948 movies to be broadcast on TV. The first movie to be broadcast on TV in the U.S. was The Wizard of OZ on November 3, 1956 during primetime. Another survival tactic of the movie studios was to produce their own television series such as “Warner Brothers Presents” (Dirks).

Another trick of the movie industry was to use gimmicks to attract people back to the movie theaters (Dirks). Since television during the 1950’s was still black and white, many films were done in color and, by the mid 1950’s, half of all films were in color. Bigger screens and 3-D were some other pretenses that movie studios used to attract more viewers. In conjunction with the larger screens and color films, many large scale epic films were made to lure movie-goers back (Dirks).

Movies have made major advances over the years. From the crude silent phenakistoscope, to full feature-length color films, films grew from a simple novelty to a creative art form and a major business. Technology helped push film into the mainstream, entertaining and informing a growing number of people each year.

# Methodology

## Transfer Process

WPI currently has a collection of 16mm films totaling approximately 60 hours. These films include war films, silent films, feature films, and animated shorts. Many of them were acquired in the past when WPI ran a film series called Cinema Tech. The largest part of our project was to help preserve these films and make them accessible to the WPI community. First, our group transferred the films to a digital format by projecting the film and recording them using a digital camcorder. Currently, the film archive is stored on eighteen three-hour digital video cassettes (DVC's). These DVC's are the master copies, replacing the 16mm reels. Now that the DVC's have been completed, the films can be formatted and put online for the WPI community. Additionally, the DVC's can serve as an intermediary to another format which better suits the needs of the WPI community.

Originally, we had planned to order the DVC's manually. But after doing the first two, we realized it was a very tedious and inefficient task. Instead, we created a small computer program to do the ordering. The program was able to order all seventy-six movies onto DVC's in a matter of seconds. This saved a great deal of time, especially when we had to re-order the DVC's due to some movies not being transferable.

The script uses a very simple algorithm to order the DVC's. The script starts a DVC that movies will be added to, and it keeps track of the remaining time. Then it goes through the list of the movies and adds the movie with the longest run length that will fit. The movie that is added to the current DVC is removed from the main list of movies. If no such movie can be found, then a new DVC is started. Once all the movies have been

allocated to DVC's, the script stops running, and outputs the results to a text file. A complete listing of the source code for the script can be found in Appendix A.

To get this project done, our group needed an easy way to communicate ideas and information amongst each other. Two email aliases were created, [filmiqp@wpi.edu](mailto:filmiqp@wpi.edu) and [filmiqp-all@wpi.edu](mailto:filmiqp-all@wpi.edu). [Filmiqp@wpi.edu](mailto:Filmiqp@wpi.edu) is the alias that our group used to communicate with each other about most details of the project. The [filmiqp-all@wpi.edu](mailto:filmiqp-all@wpi.edu) alias was used so that our project advisors, Prof. Menides and Prof. Quinn, would be kept apprised of the current tasks and status of the project. An online forum was also created for the group. The forum was another easy way to communicate among members and to store information about the films, contacts for interviews, contact information for group members, DVC planning, bibliography, and survey information. The forum can be found at <http://iqp.off-hours.com>, but will be taken down once this project is complete.

When doing an inventory of the films in our possession, we came across some discrepancies between the list that was included in Naumowicz's MQP and the actual films that we had. It turned out that four films were missing, and there were an additional thirteen films not listed. We had difficulty collecting information about a few of the films, most importantly the runtime. The runtime is the most important detail. We used this information to plan out what films would fit on each DVC. An excellent resource which we utilized to research the films is the Internet Movie Database, <http://www.imdb.com/>. From this website we were able to find runtimes, synopsis, and other details about the films like color, audio, and from which country the film originates.

We used a 16mm EIKI projector to playback the films, either onto a white screen or white wall. The first step was to properly thread the film through the projector. This refers to inserting the film in the correct manner, such that sprocket holes on the film line up with the sprockets on the projector, and it is correctly in line with the rest of the wheels. If a film is not correctly threaded it will not feed through correctly, and there is a risk of damaging it. Common damage would include tearing of the film and sprocket hole mutilation. If the sprocket holes become compromised, the film often does not playback correctly and will require repair. Once the film is properly threaded, it is ready for projection.

When projecting the film there are a few aspects that we must examine before we can begin the transfer. One of the most important is that the projected image appears sharp and clear; this is called in focus. Framing, which refers to the alignment of the shutter over the film, is another key element. If the film is not framed correctly, portions of different frame will start to appear in the current image, and the current frame will be partially cut off. It is also critical to make certain the image projected is square and not trapezoidal. If the image is trapezoidal, the projection is not lined up and the picture becomes disproportionate. After the image is playing clearly, the recording can begin.

For recording, we used a Sony DSR-200A camera. This camera was used primarily due to the features it provided us. Most importantly it supported the DVC format which we planned to use. Additionally, it allowed us to adjust the shutter speed and the audio level coming into the camera. The time code system on the camera allowed us, most of the time, to accurately track where reels began and ended on each cassette.

Occasionally the time code randomly reset, which made it a less accurate for that particular cassette.

The camera should be positioned as close to the projector as possible. This helps minimize the distortion due to angles. The height of the camera lens should be the same as the projector lens. Using the viewfinder, the camcorder was properly aligned such that the image took up the majority of the camera frame. If the film had sound, the next step was to attach an audio transfer cable from the projector to the camera. The audio level was correctly adjusted for each film. Hardwiring the sound like this allowed us to preserve as much of the quality as possible without interference from such things as ambient noise or the sound of the projector itself.

Once we had the camera and projector properly aligned, the actual filming began. In teams of two, one of us would start the projector and the other would press the record button on the camera. Once this process began, it could not be stopped until the end of each reel. If for some reason that process stopped in the middle, the tape would have to be rewound and the filming would restart from the beginning of the reel. This happened on a few occasions where the film had damage.

When this project began, we met with Joseph Kalinowski, Assistant Director of the Academic Technology Center, to discuss which media would be best for recording the films. The conclusion we reached from this meeting was that Digital Video Cassettes would be the best format for recording the films.

One of the biggest reasons for putting the films onto DVC's is that the ATC currently uses this format as a standard for its master copies of video materials that are archived. Also, it is the highest quality format that is easily supported by campus

facilities. This means that by using DVC's in the recording process, the ATC will be able to easily transfer the films to another medium (i.e. DVD or VHS) as needed.

One of the reasons digital video is preferable over most current mediums available on the market is its high level of quality. Almost all digital camcorders have a resolution of at least 500 horizontal lines. This is about twice the quality of VHS tapes (250 lines) and 8mm tapes (270 lines). Digital video format also has component color sampling which helps preserve more color information than analog VHS. The audio is also far superior on DV, and is comparable to the clarity of sound on compact discs.

Another advantage to using DV format is its longevity and ease of maintenance. VHS tapes require substantial storage space, are more fragile, and require a lot more labor intensive maintenance. Video quality is reduced each time a tape is played and degrades more quickly after 10 playbacks. DV images do not degrade over time and can be easily stored on a large hard drive.

For the length of the DVC, we chose the three hour tape over the two hour DVC and one hour mini-DVC. The three-hour tape allowed us to more efficiently use the entire tape. Since no movie was longer than three hours, every movie would fit on one DVC. Also there would be wasted space on the one-hour DVC's since most reels were between 35-45 minutes long. This would not have been a problem, except that the number of 35-45 minutes reels outnumbered those that are 25 minutes or less. There also would have been wasted space with the two hour DVC tapes, just not as much.

There are a few aspects which make it better for this to be a student project, rather than outsourcing it to a professional company. The most important is cost. Many of the companies which specialize in the process of transferring 16mm film to digital format



charge upwards of five hundred dollars per film. With the number of films that WPI has, that works out to approximately forty thousand dollars. At present, it appears that students doing this project will have no cost to the school.

Another important point is WPI's mission. WPI is a university dedicated to the pursuit of learning. Students doing this project allows for WPI to continue that mission from a non-technical angle. In transferring these films, students are able to view them, and to get an idea of what culture was like many years before we were born. It gives us an insight into our past which we may not have taken the initiative of gaining ourselves.

So, are there any setbacks to these films not being transferred professionally? Of course, the quality which we obtained while performing the transfers is not perfect. Some of the quality was lost in the transfer; perhaps slightly more than the professionals would have lost. However, we feel that the benefits received from this particular method far outweigh this small cost.

### **Determining Student Interest**

It is important to examine the level of faculty support and student interest for any type of new academic program. An MQP done in 2004 by Jonathan Naumowicz on the topic of bringing film and cinema studies to WPI states “there is a critical mass of faculty at WPI” that support the idea of the program, and are willing and able to teach courses for such a curriculum (Naumowicz, 24). Knowing that there is a strong faculty backing for the film and cinema studies program leaves only one concern about sustainability: is there enough student interest?

To that end we devised a student survey (Appendix C), which we distributed to the student body. Student interest can play a crucial role in the creation or destruction of academic programs. For this reason, we felt it was vital that a survey of the student body be taken in order to determine, overall, what the feelings were about a film and cinema studies program. There were two major concerns that occurred to us about creating and distributing a student survey; First, we wanted to make sure that our survey contained objective questions that did not direct students towards one answer over another; Second, we wanted to be certain that all students across campus were represented, and that they all had an opportunity to give input.

Our first priority while creating the survey was to make sure that the questions did not lead students towards any particular answers. To be assured that our survey did not answer itself, we had to read and analyze every question and answer we wanted to use. This aspect of the creation of our survey was critical in making sure that our results were accurate and untainted.

Once we finished creating an unbiased and objective survey, we needed to find a way to distribute such that any student was able to participate, and all of the campus was accurately represented in our results. We considered sitting at a table in the campus center and passing out surveys to students that passed by. However, we quickly dismissed this idea as there was no guarantee our results would be an accurate representation of the campus. We determined that the best course of action was to distribute the survey via the internet. We then put the survey online for all students to access.

At this point we were left with only one question: how do we let all students on campus know about our survey? The answer was quickly obvious to us. We needed to

post a message in the weekly Events Digest that is emailed to all undergraduates. We found this to be a quick and effective way to reach all of the undergraduate students.

## **Results**

### **Successful Transfers**

Over the course of the project, seventy-six films, which totaled fifty-one hours, were transferred from 16mm film reels onto the DVC tapes. The DVC tapes the films currently are on will be the new master copies. Due to DVC's being a versatile format, the films can be transferred easily to another medium such as DVD or an online streaming media format which are more suitable for viewing. Even though the movies can be viewed directly from the DVC's, doing so would be much harder as the equipment is not as easily available, and the DVC's were grouped to maximize the time used on each.

### **Survey Results**

While engaged in the process of this IQP, it became evident that we would need to do some research into the interests of the students in order to determine certain courses of action. Most importantly, we needed to determine if there was a student interest in a Cinema Studies program here at WPI, and to what degree the majority were interested in. To that end, we developed a survey (see Appendix C).

The survey was developed by the group, in conjunction with professors Menides and Quinn. It was placed online for students to take electronically. While the information was kept anonymous, a system was put in place, using the IP address of the takers, to assist in maintaining the integrity of the survey.

Overall, there were 214 results in the survey. Of those 214, 111 were female and ninety-eight were male. 136 said that would be interested in a Cinema Studies program. The graph below shows the distribution for the degree of interest for a Cinema Studies major. As is evident from the graph, the majority of students who were interested in the program desired to participate as a sufficiency.

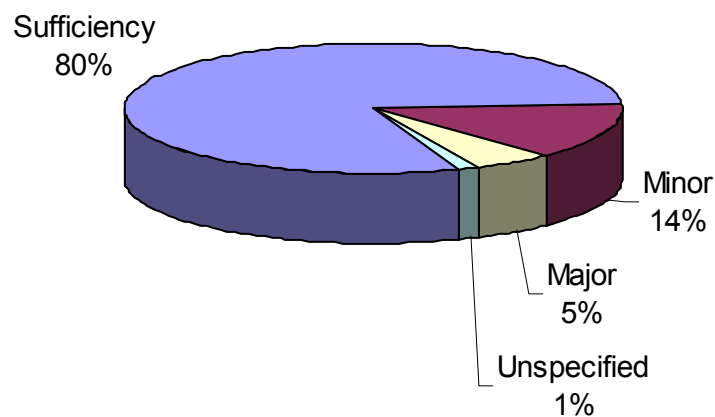


Figure 2: Distribution Of Interest in Cinema Studies Program

Of the seventy-eight who were not interested in the new program, about half of them said it was due to a lack of time. When compared with their indicated class status, most of them were seniors who are most likely graduating. Of the other half, the most common reason for saying no was a simple lack of interest in the arts.

The next critical question was whether or not students would be interested in viewing some of the films that we were transferring if such films were put online on the WPI network. Out of the 214 respondents, 203 of them expressed such an interest. Eleven, which represents only five percent, said they would not be interested. This demonstrates that the work we have been doing for the past few months, in transferring the films to a digital format, is justified and of interest to the students. This information

will also be instrumental in deciding the method of storing and delivering those films for use on the campus.

Professor Quinn asked the group to put a question on the survey regarding the new Interactive Media and Game Development major at WPI. The question asked, simply, if students were interested in the major, and why. Only 29 of the respondents said that they would be interested in such a major. However, this is not entirely discouraging. It is understandable that most students who are already here, and working in their field of study, would lack the interest to change majors. It is more likely that the new program will attract a range of new applicants to the school who desire to major in a program like this.

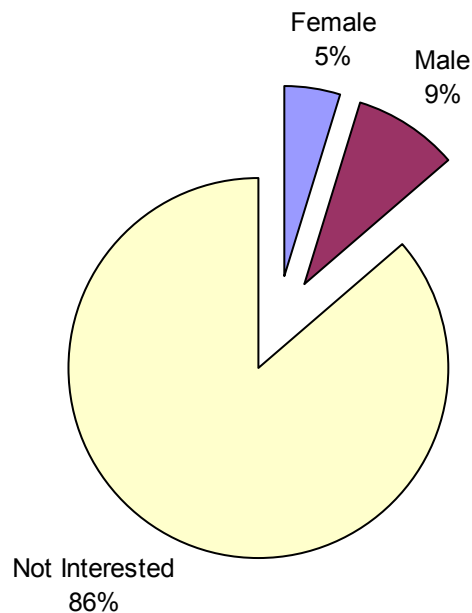


Figure 3: Breakdown of Interest In IMGD Major

The responses to the ‘why’ portion of the question varied. From those expressing an interest in the major, the most common response is that the program appears to be fun. Some indicated already taking the 1110X course, which was an experimental course related to the major. Of the people who said no, the most common reason was a lack of

interest in gaming in general. However, the answers ranged from lack of time, to expressing disinterest in interacting with the sort of people who would be most likely to major in this program.

There were also some questions on the survey targeted at getting background information on the participants. Most importantly we asked for their gender, current student status, and major. Fifty-two percent, or 111 participants, were female, while forty-six percent, or ninety-eight, were male. Five did not specify a gender.

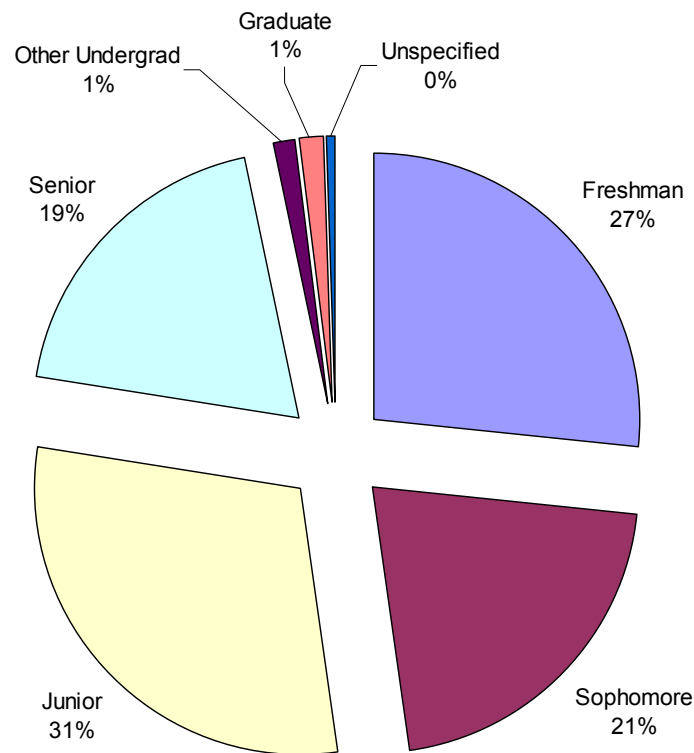


Figure 4: Breakdown of Student Years

As a matter of curiosity, we also asked students to specify what genre's of film interested them. Below is a listing of those results:

	F	M	Total
Action	71	77	148
Adventure	68	68	136
Animation	48	58	106
Classics	59	46	105
Comedy	104	91	195
Crime	41	41	82
Documentary	46	47	93
Drama	68	35	103
Family	58	13	71
Fantasy	39	54	93
Film-Noir	7	16	23
Foreign	37	31	68

	F	M	Total
Horror	46	39	85
Independe	41	47	88
Music	37	25	62
Musicals	68	21	89
Mystery	57	45	102
Romance	70	13	83
Sci-Fi	39	57	96
Shorts	27	23	50
Silent	11	9	20
Thriller	45	47	92
War	55	24	79
Western	7	20	27

Figure 5: Breakdown of Interest in Film Genres

We asked students if they would be interested in attending a themed film series. Eighty-three percent of the respondents, or 178 people, said that they would be interested in attending. The remaining seventeen percent denied interest, most of them citing a lack of time as their reason.

At the end of the survey, we asked people to volunteer to participate in a group interview if they were interested. Out of the 214, twenty indicated that they would be willing to participate in such an interview. However, due to a lack of time to organize and complete this group interview, we will not be conducting it. Luckily, out of the twenty, only two are seniors this year. Therefore, in the event that another group continues where we left off, they should be able to still have a decent number of participants if they wished to conduct such an interview.



## **Problems Encountered**

### **Transfer Issues**

During the course of the film transfer many of the films exhibited problems. Some of the problems encountered were shaky and flickering films, bad sprocket holes, ripped and torn films, framing issues, and chemical decomposition. These problems were caused by a combination of the poor quality of the film and the projector.

Almost half of the films transferred exhibited shakiness and flickering. The shakiness and flickering were most likely the projector's fault since it was very old. However, damage to sprocket holes was the cause on a few films. Most likely, the shakiness and flickering can be cleaned up while transferring the films to a distribution media.

About a half dozen films had bad sprocket holes. Some of these films had severely damaged sprocket holes which prevented the film from feeding through the projector properly. The couple of films that had one or two bad sprockets were able to be repaired; however, some other films had too many bad sprocket holes to fix in a timely manner.

In total, only about eight films ripped while transferring and, luckily, one of those films ripped after the transfer was complete. These films were able to be repaired. After being repaired, the films were able to be transferred with only a slight distortion when repaired part of the film was viewed.

A majority of the films had framing problems, caused mainly by the projector. No matter how we adjusted the framing on the projector, part of the previous frame would show up in the projected image. With most of the films, this problem was minor

and was just an annoyance. However, on “Nosferatu”, the framing was very bad and was off almost two full inches. Due to the extremely bad framing, and since it was transferred previously to VHS, we decided not to transfer it.

Almost every single film showed early signs of acetate decomposition. The majority of the films had a slight to strong vinegar smell. This, however, did not interfere with the transfer process. Had we waited any longer it would have been an issue. Even the films that did not show signs of acetate decomposition were in danger as they were not being stored in a proper climate controlled environment.

Most of the films that which were unable to be transferred were previously transferred to VHS. The films on VHS can be easily transferred to DVC using equipment the ATC possesses. The biggest drawback to using this approach is the loss of some quality. Despite the quality loss, this is a much better option then losing the film entirely. Unfortunately, there was one film which we were unable to transfer which was also not on VHS: “Pickwick Papers.” The only way to transfer this film is to send it out to a professional company since they would have the resources to deal with the problems of the film. The drawback to this is the cost involved.

## **Copyright**

At the beginning of the project we were operating under the impression that medium transfers performed by educational institutions were protected under U.S. copyright law. Recently, through the aid of Matt Laliberte, an Instructional Technologist from WPI’s ATC, we have come to realize that this information is possibly not correct.

The process of medium transfers is protected, but only under certain circumstances. Medium transfers are allowed subject to the following conditions: either

a) the condition of the work in question is deteriorating to state where it will soon be unusable; b) the medium which the film is on is now considered to be obsolete. In addition to these conditions, an unused version of the work must not be available at a reasonable cost and the organization completing the transfer must be categorized as a film archive, or film library.

Due to changes in copyright law during the past seven years, namely the Sonny Bono Copyright Extension Act of 1992, the copyrights on certain films which had previously fallen into public domain could be restored for an additional twenty years. In addition to these changes, the Digital Millennium Copyright Act of 1998 creates very specific modifications to copyright law, restricting the reproduction of any media in an electronic format. When all this is put together, it results in the possibility that WPI may have infringed on copyright on some, if not most, of these films.

## **Recommendations**

### **Follow-up Interviews & Discussions**

From the survey of the student body that we performed, several students expressed interest in a follow up interview. This could be very helpful for the next project to specifically determine what students want to see from a film program: film history or film production (writing, directing, acting, producing, editing). Focusing on these interests will help ensure the success of the program. Continuing off of Jonathon Naumowicz work, follow up interviews should also be conducted with the faculty, including but not limited to Profs. John Sanbonmatsu, Dean O'Donnell, Patrick Quinn, and Laura Menides. It is important to find out how the faculty can take full advantage of an interdisciplinary film program, as well as what they would personally like to see come from the program, and whether it is feasible.

### **Film Series**

One aspect of Jonathan Naumowicz's MQP that was not explored was the reestablishment of the CinemaTech program. This program was designed as a way for the WPI and Worcester community to gather and enjoy high quality films. CinemaTech was based around the support of student organizations like SocComm and Lens & Lights.

While it may not seem very likely for CinemaTech to return quickly, it is possible for it to return over time as the Film and Cinema Studies major becomes more prominent. Once the major has been restored, there will be a base of students and faculty from which to rebuild CinemaTech. Naturally, support will still be needed from such groups as SocComm and Lens & Lights.

One step that can be taken now in preparation for bringing back CinemaTech is to research its history and begin working on the logistics that will go into the creation and operation of such a series. This research may include not only a look back at what films were shown through CinemaTech, but also interviewing faculty and staff with personal knowledge and memories of the program and how it operated. This would help to gain some humanistic insight into the program and why it was originally established.

### **Copyright & Permissions**

Before reading this, it is important to note that no one in our group is a lawyer. The information below comes from our opinions after reading the copyrights laws of the United States, as well as discussions with Matt Laliberte from WPI's ATC. While we consider it to be correct, the analysis below should be considered for informational purposes only and by no means should be considered a valid legal opinion.

As was discussed earlier in this report, the group ran into some potential copyright issues late in the project. Namely, WPI may have infringed on the copyright of certain films which were transferred to DVC during this IQP. This section is going to briefly discuss what we can do to combat this issue and attempt to provide WPI with an electronic film library which does not violate the copyright laws.

The copyright laws, which are found in United States Codes, Title 17, Circular 92, are extremely complex. While they do grant certain rights to libraries, archives, and educators, they still are careful to restrict the amount of leeway granted. Additionally, laws passed over the past thirteen years have successfully sought to increase the restrictions placed upon audiovisual and musical works.

It is important to note that there are two different ways of interpreting laws: literally and interpretively. Someone who looks at the law interpretively is more interested in “the spirit of the law.” Rather than being concerned what the law says word for word, their concern is what the law was intended to do, and to enforce the law only to that extent. If we were to use this view of the laws, we can easily justify our actions. The purpose of copyright law was to create a balance between the need to protect creators of works, but at the same time to inspire the creating of new works to supersede their predecessors. In the views of most interpretive analysts, any nonprofit educational use of material does not violate copyright.

Unfortunately, we have a more restrictive set of legislators at the present time, also known as literalists. A literalist looks at the law and goes by exactly what the law says. They leave no room for intent or purpose. For that reason, we are going to restrict our interpretation of the laws to a literal sense.

“(c) The right of reproduction under this section applies to three copies or phonorecords of a published work duplicated solely for the purpose of replacement of a copy or phonorecord that is damaged, deteriorating, lost, or stolen, or if the existing format in which the work is stored has become obsolete, if —

“(1) the library or archives has, after a reasonable effort, determined that an unused replacement cannot be obtained at a fair price; and

“(2) any such copy or phonorecord that is reproduced in digital format is not made available to the public in that format outside the premises of the library or archives in lawful possession of such copy.”

(17 USC 92, Sec 108C)

In order for a format to be considered obsolete, the hardware which is required to play back the medium must no longer be reasonably available in the commercial marketplace. That having been said, the hardware to play 16mm films is rebounding, and therefore easily commercially available. The result: 16mm is not considered to be an obsolete format. However, most of the films that we are currently in possession of are

undergoing some form of acetate or nitrate decomposition and therefore are covered by subsection c above.

The next issue we need to deal with are the conditions of replacement under the provisions of subsection c. The law states that the “library or archive” must determine that a replacement is not commercially obtainable at a “fair price.” There are two different ways to evaluate the significance of this condition, which brings about the question “What are we preserving when transferring these films?” If we are simply transferring them to preserve the work itself, then at least some of them are commercially available at a reasonable cost. However, if we examine the nature of a film studies course, it is certainly possible that part of the course would wish to examine the differences in the quality and type of viewing sixty years ago versus that of present day. In this case, we are preserving more than just the work itself, but rather the appearance of the images, quality of the sound, and overall disparity of the experience in viewing a film. Clearly, if this is the case, a replacement is all but unobtainable, let alone at a fair price.

The next section of the law deals specifically with reproducing the item in an electronic format. The only restriction is that, if the film is reproduced digitally, the digital version can not be made available to the public outside the premises of the library or archive. This poses a slight problem as part of the desired goal is to have the films available to the entire WPI community. At this point another section of the law now becomes important: “... a library or archives, including a nonprofit educational institution that functions as such...” (17 USC 92, Sec 108H) This demonstrates a legal outlet for a nonprofit educational institution, like WPI, to be considered a library or archive. This provides us both with the means to allow electronic access anywhere on campus, as well

as giving us standing to consider ourselves a library or archive for the purpose of conducting the transfers.

The last issue we run into with digitizing these films is the public display of them in class. For resolving this issue, we turn to another section of copyright law:

“Notwithstanding the provisions of section 106, the following are not infringements of copyright: (1) performance or display of a work by instructors or pupils in the course of face-to-face teaching activities of a nonprofit educational institution, in a classroom or similar place devoted to instruction...”(17 USC 92 Sec 110.1)

Having read this, we believe it is acceptable for a teacher to display a movie, in its entirety, to a class for the purpose of education. Showing the films to students via the ADLN is a more complex issue which would require further examination in United States Codes, Title 17, Circular 92, section 110.2.

It should also be noted that some of the films which WPI is in possession of are part of the public domain at this point. For example, several films produced as propaganda by the U.S. Department of War are in WPI’s archive. Works produced by the United States government are not eligible for protections under copyright, and therefore fall into the public domain:

“Copyright protection under this title is not available for any work of the United States Government, but the United States Government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise.”  
(17 USC 92, Sec 105)

Lastly, some of the films we have are foreign, and are not protected under U.S. copyright law. In these cases, the copyright laws of the foreign country are enforceable by Interpol and need to be researched before proceeding with those films.

In our opinion, there are two possible courses of action for members of a future group to take. The first is to consult with WPI’s legal team regarding the above opinion, and, if they feel that it is sound, to proceed with the transfers and digitization of the films



in our possession. In this case, only copyrights from foreign countries would need to be researched.

The second course of action, which is the safest, is to determine which films are in public domain, and proceed with transferring those films first. From that point, the members could then begin to track down the copyright holders for all films still under copyright, and send a letter to the holder requesting permission to complete the project. In the circumstances of a letter, it would be important to detail the exact rights we are requesting, and to include the fact that the films are being used for educational purposes without the intent or prospect of financial gain. An example letter is available in Appendix F.

For any copyright holder that could not be tracked down under this system, it would be important to document the attempt to locate them. Should any legal action come later, the law provides protection so long as the party in question made a good faith effort to locate the copyright holder. Of course, WPI's legal department should be involved before a final decision is made.

## **Creating A Syllabus**

An important next step in the process of obtaining a film program at WPI is to research what type of programs other schools currently have. Part of our recommendation is for students to research the film programs at surrounding schools such as Clark, Becker, Assumption, Anna Maria, Holy Cross, or any other school in the Worcester Consortium. This will give the students a basis for what is offered by other programs. Students should also research schools such as Rensselaer Polytechnic Institute, Rochester Institute of Technology, Massachusetts Institute of Technology, as well as other

institutions which have a strong emphasis on engineering and technology as well as institutions with strong film programs like Emerson, University of California LA, New York University, and the American Film Institute. This will give them an idea what WPI's competition is offering, and what courses WPI might want to look at for the future. From this research, the students should be able to put together a basic syllabus for WPI to start a film program. Students should be sure to get feedback from different professors in the humanities department whom are interested in the program in order to make sure the syllabus is reasonable.

### **Distribution Of Films**

The next step in the project is to transfer the films from master copies on DVC to a distribution media. Originally, we had intended to do this as part of our project but we were unable to due to the transfers to DVC taking longer than expected. Transferring the films from DVC to a distribution media needs to be done in order to allow the student body and faculty to view these films, many of which have historical importance. The two methods we think would best suit WPI are online streaming media and DVD; both have their strengths and weaknesses.

The main benefit of DVD's is the ability to control their access. The DVD can be checked out by students to view and can be limited to students taking certain classes. The DVD can also be checked out by faculty to be shown in class. This, however, is the main weakness of DVD's, as the distribution can be too limited. If more students need to view the movie then copies are available, those students are simply out of luck until the movies are returned.

Online streaming media's main benefit is its easy access. With a streaming media any student or faculty will be able to view the movie at any time as long as they have a WPI login. However, online streaming media may not be possible for the movies not in public domain or for which permission could not be obtained from the copyright holders. The other downside of online streaming media comes from the format chosen. If Windows Media Format (WMF) is used as the ATC recommended, then only computers with Windows Media Player will be able to view the movie. This is not a problem for computers running Windows as Windows Media Player is built in. With WMF, however, computers running alternate OS's, such as Linux or MacOS, might not be able to view the movie.

For those where the copyright issues have been worked out, we recommend an online streaming media as it better fits with the goals of this project. The ATC fully supports the Windows Media Format, and all WPI owned machines on campus have Windows Media Player. This would allow students who can not view the movie on their home computers to go to a lab on campus and watch the movie. Also any faculty member will be able to show a movie in any classroom with a computer. Also the ATC will host and maintain the movies on their media server which will allow anyone with a WPI login to access them. This decision takes the burden of maintenance off of the humanities department, and places it in the hands of the professionals at the ATC.

### **Advertising New Program**

In preparation for the establishment of Film and Cinema Studies as a major program, some type of advertising campaign must be created to find students who would

not otherwise consider WPI as a viable institution for secondary education. The goal of the program would be to target this demographic and give them a reason to apply to WPI.

This campaign should be directed towards individuals who are interested in cinema, and wish to further their understanding of and appreciation for this art form. How this message would best be conveyed is currently unknown and undetermined, but should be resolved by the time that the program is ready to launch. This would allow a maximum number of students to be made aware of the program and to have the opportunity to apply to WPI in pursuit of a degree in Film and Cinema Studies.

## **Conclusion**

In summary, we feel another IQP group should undertake the task of following up on our recommendations in an effort to establish a flourishing film and cinema studies major. The most important aspect of this undertaking would be to gain permission from copyright holders to perform a medium transfer of the films. Additionally, follow-up interviews should be conducted with interested faculty and students, and a basic syllabus should be created and recommended for implementation by WPI. We feel that these three objectives are the next critical steps towards restoring film and cinema studies at WPI.

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## Filmography

“The Battle of China”. 1944. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A

“Nosferatu”. 1922. F. W. Murnau. N/A. N/A.

“Pickwick Papers”. 1952. Noel Langley. Festival Films, Minneapolis. N/A.

“The Trial”. 1962. Orson Welles. N/A. Orson Welles, Jeanne Moreau, Anthony Perkins and Romy Schneider.

“Uncle Tom’s Cabin”. 1903. Edwin S. Porter. Edison Company. N/A.

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## Appendix A – Python Script

To make ordering the DVC's easier, a script, whose code listing appears at the end of this appendix, was created and written in python. Python was chosen mainly out of personal preference and due to the fact python is available on the CCC cluster. The script was released under the GPL (GNU Public License) so it can be redistributed and modified as long as the source is included.

The script takes in three arguments. The first argument is the length of the DVC's in minutes; the second argument is the name of the file containing all of the movie titles and run times in minutes; and the third argument is the name of the file where the output should go. The file that contains the list of the movies should be a CSV (comma separated values) file, where the first column is the movie title and the second column is the movie run time in minutes. A CSV file has each column separated by a comma and each row separated by a new line. The following are the contents of a sample CSV file in the proper format:

```
Title1, 58
Title2, 22
A Really Long Title, 72
Title3, 83
```

### Running The Program On A CCC machine

First copy the code listing that is found below this section into a file such as dvc.py. Now upload this script to you're home directory. This can be done by mapping a network drive to \\toaster\yourusername, and copying the script to the mapped drive. Now you need to SSH into ccc.wpi.edu and change the permission of the script by



executing the following command: “chmod o+x dvc.py” (Note: If you did not name the script dvc.py, then replace dvc.py with whatever you named it.). Now you execute the script by running this command “./dvc.py 180 movies.csv dvcs.txt” where 180 is the length of the DVC’s in minutes, movies.csv is the file containing the list of movies, and dvcs.txt is the desired output file.

## Limitations and Workarounds

If any movie is longer than the length of the DVC, then this program will end up in an infinite loop. If the program does go into an infinite loop, pressing “Ctrl-C” will forcibly stop it from running. One way around this is to list each reel separately, but if one of the reels is longer than the length of the DVC there is no workaround. If the input file is not in the correct format, then the results of the program are undefined, and an infinite loop could occur. Also, movie titles can not contain commas since commas are used to separate movie titles from their runtimes.

## Code Listing

```
#!/usr/bin/env python
#####
# File: dvc.py
# Author: Steven Torance
# Copyright (c) 2004 Steven Torance
#
# This program is free software; you can redistribute it and/or
# modify it under the terms of the GNU General Public License
# as published by the Free Software Foundation; either version 2
# of the License, or (at your option) any later version.
#
# This program is distributed in the hope that it will be useful,
# but WITHOUT ANY WARRANTY; without even the implied warranty of
# MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
#
# See the GNU General Public License for more details.
#
# You should have received a copy of the GNU General Public
# License along with this program; if not, write to the Free
# Software Foundation, Inc., 59 Temple Place - Suite 330,
```

```

# Boston, MA 02111 - 1307, USA.
#####

import sys
import string
import copy

class Movie:
    title=''
    runtime=0

    def __init__(self, title, runtime):
        self.title = title
        self.runtime = runtime

class DVC:
    number=0
    length=0
    maxlength=0
    movies=[]

    def __init__(self, number, maxlength):
        self.number = number
        self.maxlength = maxlength
        self.length = 0
        self.movies = []

    def addmovie(self, movie):
        """Adds a movie to the DVC if there is space"""
        if (self.length + movie.runtime <= self.maxlength):
            self.length += movie.runtime
            self.movies.append(movie)
            return 1
        return 0

    def timeleft(self):
        """Gets the time remaing on the DVC"""
        return self.maxlength - self.length

    def totalmovies(self):
        """Gets the total number of movies on the DVC"""
        return len(self.movies)

def max(movies, nogreater):
    """Finds the movie with the maximum run time <= nogreater"""
    temp_runtime = 0
    temp_title=''
    maxindex = -1
    for i in range(0, len(movies)):
        runtime = movies[i].runtime;
        if runtime > temp_runtime and runtime <= nogreater:
            temp_runtime = runtime
            temp_title = movies[i].title
            maxindex=i

    if (maxindex == -1):

```

```

        return None
        movies[maxindex:maxindex+1] = [] # delete movie from list
        return Movie(temp_title, temp_runtime)

def parse_moviedb(filename):
    """Parses the specified csvfile containing movie titles and run
    times"""
    parsed_movies=[]
    file = open(filename, 'r')
    for line in file.readlines():
        (title, runtime) = string.split(line, ',')
        parsed_movies.append(Movie(title, string.atoi(runtime)))
    return parsed_movies

def plan_dvcs(movies, maxlength):
    """Plans out the DVCs of given maxlength"""
    dvcs=[]
    dvcnumber = 1
    dvc = DVC(dvcnumber, maxlength)
    while (len(movies) > 0):
        movie = max(movies, dvc.timeleft())
        if (movie == None):
            dvcnumber += 1
            dvcs.append(dvc)
            dvc = DVC(dvcnumber, maxlength)
        else:
            dvc.addmovie(movie)

    dvcs.append(dvc)
    return dvcs

def main():
    print "DVC Planner v1.0\nCopyright (c) 2004 Steven Torance\n"
    if len(sys.argv) < 3:
        sys.exit("Error: Usage: %s <dvclength> <csvfile>
<outputfile>"
% sys.argv[0])
    dvcmaxlength = string.atoi(sys.argv[1])
    csvfilename = sys.argv[2]
    outputfilename = sys.argv[3]

    totalmovies=0
    totaltime=0

    movies = parse_moviedb(csvfilename)
    print "Loaded %d movies" % len(movies)
    dvcs = plan_dvcs(copy.copy(movies), dvcmaxlength)
    print "Planned %d DVCs" % len(dvcs)

    outputfile = open(outputfilename, 'w')
    for dvc in dvcs:
        totalmovies += dvc.totalmovies()
        totaltime += dvc.length
        outputfile.write("DVC %d\n\tLength: %d min\n\tMovies: %d\n"
% (dvc.number, dvc.length, dvc.totalmovies()))
        for movie in dvc.movies:

```

```

        outputfile.write("\t\t%s:                %d\n" %
            (movie.title, movie.runtime))
        outputfile.write("\n")
        outputfile.write("Total        Stats\n")
        outputfile.write("\tTotal Movies: %d\n" % totalmovies)
        outputfile.write("\tTotal Length: %d\n" % totaltime)
        outputfile.close()

        print ("Total Stats")
        print ("\tTotal Movies: %d" % totalmovies)
        print ("\tTotal Length: %d" % totaltime)

if(__name__ == "__main__"):
    main()

```

## Appendix B – DVC Planning

### Basic Format

#### DVC #

Length: Tape runtime

Movies: # of Movies

“Movie Title”: Run Time, Timecodes

#### DVC 1

Length: 178 min

Movies: 8

“Clay” (Origin of Species): 9, 0:00:00:00 – 0:8:37:19

“Nixon: Checkers to Watergate”: 19, 0:00:00:00 - 0:19:13:23\*

“Nazi Strike”: 41, Reel 1: 0:19:20:00-0:43:18:05

Reel 2: 0:43:25:02-0:59:39:07

“Biography Of A Motion Picture Camera”: 21

“Uncle Tom's Cabin”: 13, 0:59:52:13-1:20:31:34

“The Dot and the Line”: 9, 1:34:35:07-1:44:32:12

“Prelude to War”: 54, Reel 1: 1:44:39:01-2:10:58:28

Reel 2: 2:11:03:17-2:37:35:09

“The Fall of the House of Usher”: 12, 2:37:39:24-2:50:18:12

#### DVC 2

Length: 176 min

Movies: 2

“The Trial”: 119, 0:00:00:00-1:59:11:10

“Divide and Conquer”: 57, Reel 1: 1:59:16:10-2:27:32:18

Reel 2: 2:27:36:19-2:56:38:01

#### DVC 3

Length: 174 min

Movies: 2

“The Gospel According to St. Matthew”: 136,

Reel 1: 0:00:00:00-0:46:09:16

Reel 2: 0:46:13:04-1:27:56:22

Reel 3: 1:28:00:03-02:14:26:05

“White Mane”: 38, Start: 0:00:05:13-0:38:53:10\*

#### DVC 4

Length: 176 min  
Movies: 2  
“Nicholas Nickelby”: 103, Reel 1: 1:12:20:08-1:51:05:25  
Reel 2: 1:51:10:01-2:27:05:09  
Reel 3: 2:27:09:08-3:00:20:02  
“Animal Farm”: 73, Reel 1: 0:00:00:00-0:31:49:23  
Reel 2: 0:31:54:00 -1:12:15:25

#### DVC 5

Length: 171 min  
Movies: 3  
“Point of Order”: 97, Reel 1: 1:03:53:12-1:26:32:02  
Reel 2: 1:26:37:04-1:57:47:12  
Reel 3: 2-0:00:05:12-2-0:43:38:23  
“Dr Jeckyll and Mr. Hyde”: 69, Reel 1: 0:00:00:00-0:42:10:01  
Reel 2: 0:42:16:09-1:03:45:06  
“Lumier Premier Program”: 5, 1:57:53:17-2:02:22:13

#### DVC 6

Length: 177 min  
Movies: 3  
“The Fallen Idol”: 96, Reel 1: 0:00:00:00-0:46:48:10  
Reel 2: 0:46:53:03-1:35:34:03  
“Paris 1900”: 81, Reel 1: 1:35:39:09-2:10:36:22  
Reel 2: 2:10:40:28-2:48:01:14  
“The New York Hat”: 9, 2:48:06:22-2:59:05:02

#### DVC 7

Length: 177 min  
Movies: 2  
“Orpheus”: 96, Reel 1: 0:00:00:00-0:31:01:03  
Reel 2: 0:31:04:27-1:07:19:15  
Reel 3: 1:07:24:10-0:27:22:07\*  
“Persona”: 81, Reel 1: 0:27:27:00-0:51:13:11  
Reel 2: 2-0:51:18:25-2-1:22:46:49  
Reel 3: 1:22:51:06-1:50:14:10

### **DVC 8**

Length: 177 min  
Movies: 2  
“Rain”: 94, Reel 1: 0:00:00:00-0:39:34:17  
Reel 2: 0:39:39:11-1:17:48:08  
Reel 3: 1:17:53:05-1:33:49:01  
“Of Human Bondage”: 83, Reel 1: 1:33:55:04-2:22:09:25  
Reel 2: 2:22:14:08-2:56:32:08

### **DVC 9**

Length: 173 min  
Movies: 4  
“Secret Agent”: 83, Reel 1: 0:00:00:00-0:37:01:04  
Reel 2: 0:37:07:06-1:23:58:16  
“A Farewell to Arms”: 78, Reel 1: 1:24:03:11-2:03:43:24  
Reel 2: 2:03:48:24- 2:42:46:13  
“Olympia Diving Sequence”: 6, 2:42:51:13-2:47:55:11  
“Renaissance”: 6, 0:00:04:25-0:09:29:03\*

### **DVC 10**

Length: 177 min  
Movies: 3  
“Metropolis”: 93, Reel 1: 0:07:22:19-0:53:24:18  
Reel 2: 0:53:30:26-1:39:42:11  
“Sabotage”: 77, Reel 1: 1:39:48:07-2:16:25:12  
Reel 2: 2:16:30:17-2:56:13:02  
“Study in Wet”: 7, 0:00:00:00-0:07:17:11

### **DVC 11:**

Length: 155 min  
Movies: 3  
“Underworld”: 88, Reel 1: 0:00:00:00-0:47:53:25  
Reel 2: 0:48:00:12-1:28:37:13  
“War Comes to America”: 55, Reel 1: 1:28:42:29-1:55:37:14  
Reel 2: 1:55:42:11-2:16:56:03  
“Images Medievels”: 18, 2:17:00:11-2:35:21:12

## DVC 12

Length: 179 min  
Movies: 4  
    “The Gardener's Son”: 115 Reel 1: 0:00:00:00-0:37:59:05  
    Reel 2: 0:38:04:04-1:16:18:21  
    Reel 3: 1:16:28:08-1:54:27:25  
    “Madeline”: 7, 1:54:32:27-2:01:32:12  
    “Nanook of the North”: 51, Reel 1: 2:01:40:04-2:21:34:11  
    Reel 2: 2:21:39:02-2:52:33:21  
    “Poem Field #2”: 6, 2:52:38:09-2:58:34:16

## DVC 13

Length: 177 min  
Movies: 4  
    “The Battle of Russia”: 80, Reel 1: 1:04:55:13-1:40:49:23  
    Reel 2: 1:40:53:14-2:09:43:08  
    Reel 3: 22:08:48:56-2:28:55:04  
    “The Battle of China”: 67, Reel 1: 0:00:00:00-0:36:10:10  
    Reel 2: 0:36:15:06-1:04:50:14  
    “Earthquake”: 29, 2:28:59:21-2:41:59:18  
    “Two men and a Wardrobe”: 15, 2:42:05:00-2:57:14:26

## DVC 14

Length: 175 min  
Movies: 4  
    “The Titan: The Story of Michaelangelo”: 64,  
    Reel 1: 0:00:00:00-0:30:39:25  
    Reel 2: 0:30:45:06-1:04:23:20  
    “The Battle of Britain”: 53, Reel 1: 1:04:27:08-1:31:33:11  
    Reel 2: 1:31:38:00-1:57:37:00  
    “The Cabinet of Dr. Caligari”: 50, Reel 1: 1:57:42:08-2:21:22:00  
    Reel 2: 2:21:27:00-2:47:58:04  
    “A Trip to the Moon”: 8, 2:47:56:04-2:55:47:10

## DVC 15

Length: 173 min  
Movies: 6  
    “The City”: 44, 0:00:00:00-0:43:02:13  
    “The River”: 32, 0:43:07:09-1:13:52:21  
    “Night and Fog”: 31, 1:13:57:09-1:46:01:27  
    “An Occurrence at Owl Creek Bridge”: 27, 1:46:06:27-2:13:44:17  
    “Fall of Babylon”: 27, 2:13:49:08-2:37:50:10  
    “New York New York”: 16, 2:3:55:03-2:53:02:11



**DVC 16**

Length: 180 min  
 Movies: 8  
     “Marc Chagall”: 25, 0:00:00:00-0:25:37:22  
     “The Plow That Broke the Plains”: 25, 0:25:42:07-0:51:23:15  
     “The Immigrant”: 25, 0:51:29:04-1:17:24:15  
     “Why Man Creates”: 25, 1:17:29:04-1:41:49:18  
     “Film Firsts Part 2”: 25, 1:41:53:27-2:07:46:27  
     “The Hand”: 19, 2:07:51:05-2:26:49:04  
     “Rhythm of Africa”: 17, 2:26:54:08-2:43:20:05  
     “The Wall”: 15, 2:43:25:00-3:00:09:00

**DVC 17**

Length: 151 min  
 Movies: 8  
     “The String Bean”: 16, 0:00:00:00-0:17:18:09  
     “Labyrinth”: 12, 0:17:23:26-0:32:26:26  
     “Battleship Potemkin – Extract”: 10, 0:32:31:01-0:42:27:19  
     “Ersatz”: 10, 0:42:33:19-0:52:47:08  
     “The Shaker”: 30, 0:52:52:15-1:22:26:16  
     “An Introduction to the General-Purpose Oscilloscope”: 23, 1:51:27:08-2:14:31:29  
     “Basic Electromechanical Instrument Mechanisms”: 29, 1:22:30:23-1:51:22:09  
     “Extreme Wind Study”: 17, 2:14:36:10-2:31:30:07

**DVC 18**

Length: 60 min  
 Movies: 1  
     “Easy Virtue”: 60, Reel 1: 0:00:00:00-0:39:20:18  
     Reel 2: 0:39:25:08-0:59:34:09

\* - Denotes a timecode reset.

## Appendix C – Student Survey

Thank you for participating in our survey. The information collected here will assist our group in determining the best recommendations for a Film and Cinema Studies major at WPI. Any information given during this survey is completely confidential and will be used solely for research purposes for this IQP project. Thank you for your help.

Gender:

Year:

Major:

Double Major:

Minor:

Sufficiency Subject Area:

1) Would you be interested in taking a course in Film and Cinema Studies if it were offered?

1a) If no, why not?

1b) If yes, to what extent?

2) What films interest you? (Genres as well as specific titles)

Action	Adventure	Animation	Classics
Comedy	Crime	Documentary	Drama
Family	Fantasy	Film-Noir	Foreign
Horror	Independent	Music	Musicals
Mystery	Romance	Sci-Fi	Shorts
Silent	Thriller	War	Western

3) Would you be interested in watching such films if WPI put them online for students, faculty, and staff to access?

4) If a themed film series was run over the course of the school year, would you be likely to attend one or more films?

4a) Why?

5) Are you interested in taking a course in the new Interactive Media and Game Development (IMGD) major that has been introduced at WPI?

5a) Why?

6) What other forms of media interest you?

7) Would you be interested in taking part in a group interview on Film and Cinema Studies being brought back to WPI?

7a) If yes, Name: EMail:

Additional Comments:

## Appendix D – WPI's 16mm Film Collection

The format of this filmography is as follows:

“Title”. Date. Director(s). Studio. Significant Actor(s).

“Animal Farm”. 1954. John Halas and Joy Batchelor. N/A. N/A.

“Basic Electromechanical Instrument Mechanisms”. Find. Find. Find. N/A.

“The Battle of Britain”. 1943. Frank Capra and Anthony Veiller. National Audiovisual Center, Washington, D.C.. N/A.

“The Battle of China”. 1944. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A.

“The Battle of Russia”. 1944. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A.

“Battleship Potemkin – Extract”. 1925. Sergei M. Eisenstein and Grigori Aleksandrov. N/A. N/A.

“Biography of a Motion Picture Camera”. N/A. Roger Leenhardt. Film Images, New York. N/A.

“The Cabinet of Dr. Caligari”. 1919. Robert Wiene. Film Images, New York. Werner Krauss.

“The City”. 1939. Ralph Steiner and Willard Van Dyke. Pyramid, Santa Monica, California. N/A.

“Clay: Origin of Species”. 1964. Eliot Noyes Jr.. Contemporary/McGraw-Hill, New Jersey. N/A.

“Divide and Conquer”. 1943. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A.

“The Dot and the Line”. 1965. Chuck Jones and Maurice Noble. Films, Inc., New York. N/A.

“Dr. Jekyll and Mr. Hyde”. 1920. John Robertson. N/A. John Barrymore, Martha Mansfield and Brandon Hurst.

“Earthquake”. 1972. N/A. National Audiovisual Center, Washington, D.C.. N/A.

“Easy Virtue”. 1927. Alfred Hitchcock. N/A. Isabel Jean, Franklin Dyall and Ian Hunter.

- “Ersatz”. 1969. Dusan Vukotic. Contemporary/McGraw-Hill, Hightstown, New Jersey. N/A.
- “Extreme Wind Study”. 1975. N/A. National Audiovisual Center, Washington, D.C.. N/A.
- “Fall of Babylon”. 1961. Saul J. Turell and Paul Killiam. Killiam Shows, Inc.. N/A.
- “The Fall of the House of Usher”. 1928. James Sibley Watson and Melville Webber. N/A. N/A.
- “The Fallen Idol”. 1949. Carol Reed. N/A. Ralph Richardson, Bobby Henrey and Jack Hawkins.
- “A Farewell to Arms”. 1932. Frank Borzage. N/A. Helen Hayes, Gary Cooper and Adolph Menjou.
- “Film Firsts Part 2”. N/A. Killiam Collection, New York. N/A.
- “The Gardener’s Son”. 1976. Richard I. Pierce. N/A. Brad Dourif.
- “The Gospel According to St. Matthew”. 1964. Pier Paolo Pasolini. N/A. Enrique Irazoqui, Margherita Caruso, Susanna Pasolini and Marcello Morante.
- “The Hand”. 1964. Jiri Trnka. Contemporary/McGraw-Hill, New Jersey. N/A.
- “Images Medievales”. 1949. William Novik. Film Images, New York. N/A.
- “The Immigrant”. 1917. Charles Chaplin. Macmillan, New York. Charles Chaplin and Edna Purviance.
- “An Introduction to the General-Purpose Oscilloscope”. N/A. N/A. N/A. N/A.
- “Labyrinth”. 1961. N/A. Contemporary Films/McGraw Hill. N/A.
- “Lady Chatterly’s Lover”. 1955. Marc Allegret. N/A. Danielle Darrieux, Leo Genn and Erno Crisa.
- “Lumier Premier Program”. 1895. Auguste Lumiere and Louis Lumiere. Film Images, New York. N/A.
- “Madeline”. 1952. Robert Cannon. Learning Corporation of America, New York. N/A.
- “Marc Chagall”. 1964. Lauro Venturi. Contemporary/McGraw-Hill, New Jersey. N/A.

“Metropolis”. 1926. Fritz Lang. Film Images, New York. Alfred Abel, Gustav Frohlich, Brigitte Helm, Rudolph Kleine-Rogge, Fritz Rasp and Heinrich George.

“Mother”. 1926. Vsevolod Pudovkin. N/A. N/A.

“Nanook of the North”. 1922. Robert J. Flaherty. Contemporary/McGraw-Hill, Hightstown, New Jersey. N/A.

“Nazi Strike”. 1943. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A.

“The New York Hat”. 1912. D. W. Griffith. Film Images, New York. N/A.

“Nicholas Nickelby”. 1947. Alberto Cavalcanti. Festival Films, Minneapolis. N/A.

“Night and Fog”. 1955. Alain Resnais. Contemporary/McGraw-Hill, New Jersey, N/A.

“Nixon: Checkers to Watergate”. N/A. N/A. Pyramid Films, Santa Monica, California. N/A.

“Nosferatu”. 1922. F. W. Murnau. N/A. N/A.

“N.Y., N.Y.”. 1957. Francis Thompson. Pyramid Films, Santa Monica, California. N/A.

“An Occurrence at Owl Creek Bridge”. 1962. Robert Enrico. N/A. N/A.

“Of Human Bondage”. 1934. John Cromwell. N/A. Leslie Howard and Bette Davis.

“Olympia – Extract (The Diving Sequence)”. 1938. Leni Riefenstahl. N/A. N/A.

“Orpheus”. 1949. Jean Cocteau. N/A. Jean Marais and Francois Perier.

“Our Town”. 1940. Sam Wood. N/A. William Holden, Martha Scott, Fay Bainter, Beulah Bondi and Thomas Mitchell.

“Paris 1900”. 1948. Nicole Vedres. Macmillan, New York. N/A.

“Persona”. 1966. Ingmar Bergman. N/A. Bibi Andersson and Liv Ullmann.

“Pickwick Papers”. 1952. Noel Langley. Festival Films, Minneapolis. N/A.

“The Plow that Broke the Plains”. 1936. Pare Lorentz. National Audiovisual Center, Washington, D.C.. N/A.

“Poem Field II”. 1966. Stan van der Beek. Pyramid Films, Santa Monica, California. N/A.

“Point of Order”. 1964. Emile de Antonio. New Yorker Films, New York. N/A.

“Prelude to War”. 1943. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A.

“Rain”. 1932. Lewis Milestone. N/A. Joan Crawford, Walter Huston and William Gargan.

“Renaissance”. 1963. Walerian Borowczyk. Pyramid Films, Santa Monica, California. N/A.

“Rhythm of Africa”. 1944. Jean Cocteau. Film Images, New York. N/A.

“The River”. 1938. Pare Lorentz. National Audiovisual Center, Washington, D.C.. N/A.

“Sabotage”. 1936. Alfred Hitchcock. N/A. Sylvia Sidney, Oscar Homolka and John Loder.

“Secret Agent”. 1936. Alfred Hitchcock. N/A. John Gielgud, Peter Lorre, Madeleine Carroll and Robert Young.

“The Shaker”. 1974. Tom Davenport. Tom Davenport Films. N/A.

“The String Bean”. 1962. Edmond Sechan. National Audiovisual Center, Washington, D.C.. N/A.

“Study in Wet”. 1966. Homer Groening. ACI Films, New York. N/A.

“The Titan: Story of Michaelangelo”. 1950. Robert J. Flaherty, Richard Lyford and Curt Oertel. Contemporary/McGraw-Hill, Hightstown, New Jersey. N/A.

“The Trial”. 1962. Orson Welles. N/A. Orson Welles, Jeanne Moreau, Anthony Perkins and Romy Schneider.

“A Trip to the Moon”. 1902. Georges Melies. Film Images, New York. N/A.

“Triumph of the Will”. 1935. Leni Riefenstahl. N/A. N/A.

“Two Men and a Wardrobe”. 1958. Roman Polanski. Film Polski and Contemporary/McGraw-Hill, New Jersey. N/A.

“Uncle Tom’s Cabin”. 1903. Edwin S. Porter. Edison Company. N/A.

“Underworld”. 1936. Jean Renoir. N/A. N/A.

“The Wall”. 1969. Jan Svankmajer. Films, Incorporated, New York. N/A.

“War Comes to America”. 1945. Frank Capra and Anatole Litvak. National Audiovisual Center, Washington, D.C.. N/A.

“White Mane”. 1952. Albert Lamorisse. Macmillan, New York. N/A.

“Why Man Creates”. 1968. Elaine Bass and Saul Bass. Pyramid Films, Santa Monica, California. N/A.

“The World of Apu”. 1959. Satyajit Ray. N/A. N/A.

## **Appendix E – Important Meetings And Interviews**

Nov. 1, 2:00PM; Meeting with Joe Kalinowski of the ATC to determine logistics for the film transferring process.

Nov. 5, 4:00PM; Meeting with Joe Kalinowski to discuss the methodology behind the transferring of the films and become familiar with equipment.

Nov. 8, 4:00PM; Meeting with Joe Kalinowski to go over the equipment involved in this project. Also ATC helped cover the cost of the DVC's for us to use.

Nov. 9, 12:00PM; Meeting with Joe Kalinowski and Tom Lynch, VP of Information Technology. Discussed the possibility of having multiple cameras; also discussed getting a reserved location on campus for filming.

Nov. 10, 2:30PM; Meeting with Helen Shuster, Director of Library Services. Agreed to give temporary private access to a study room in the library.

Nov. 19, 4:00PM; Meeting with Prof. Weeks of the music department concerning the use of the room in Alden. Came to the conclusion that there will be enough room for us to store our equipment and that no one would move our equipment.

April 1, 2:00PM; Meeting with Joe Kalinowski. Discussed film distribution methods, copyright issues and possibility of another IQP group following our work.

April 14, 9:00AM; Meeting with Matt Laliberte of WPI's ATC concerning potential copyright issues in this project. Matt informed us of the issues we faced and provided some resources for us to further research these issues.



## Appendix F – Sample Copyright Permission Request

Humanities Department  
Worcester Polytechnic Institute  
100 Institute Road  
Worcester, MA 01609

May 2, 2005

Some Movie Studio  
1234 Some Road  
Hollywood, CA 90037

Dear Some Movie Studio:

My name is Some Group Member and I am a student at Worcester Polytechnic Institute in Worcester, Massachusetts. Some fellow students and I are currently conducting an Interactive Qualifying Project as part of a graduation requirement. One of the goals of this project is to preserve a collection of 16mm films which WPI owns. Most of the films are currently in a state of acetate decomposition, and are in danger of shortly becoming irreparably damaged, or worse, unusable. We are writing to you as you are the currently copyright holder for some of the films in our possession.

List  
Of  
Films

We are writing to request your permission, pursuant to United States Codes, Title 17, Circular 92, to perform a medium transfer of these films while they are still viable. Our goal is to preserve the films by recording them either onto a DVD disc, or digitize them for access via our on-campus computer system. In doing this, we are preserving not only the work itself, but also the appearance and quality of the film as it would have been viewed many years ago. We feel that preserving the films in this manner allows for a greater learning experience.

To make it clear what I am asking, we are requesting permission to do the following:

- 1) Preserve the films by projecting and re-recording them onto another format
- 2) Transfer the films to a digital format, to be accessed by computer terminals on our campus
- 3) If electronic dissemination is not permissible, to transfer the films onto a DVD disc, to be checked out from our library, free of charge, by members of our community
- 4) If transferring to DVD is permissible, permission to create multiple copies to be held in our library, for the purpose of allowing multiple students in a class to view the film simultaneously

Feel free to select individual permissions above if you are not willing to grant them as a whole, as we would appreciate whatever permissions you are willing to grant us. We would like to emphasize that we are requesting these permissions purely for the purpose of preserving the works as part of the desire to further education. We are a nonprofit institution, and we are not seeking, nor do we have any future intent to seek monetary gain due to the transfer of these films. Your agreement to our request, in the spirit of education, would be greatly appreciated. Thank you for your time and consideration.

Sincerely,

Some Group Member  
(on behalf of the WPI Humanities Department)