NEW GRADUATE CONCENTRATION PROPOSALS
ARIZONA STATE UNIVERSITY
GRADUATE COLLEGE

This form should be used for academic units wishing to propose a new concentration for existing graduate degrees.

A concentration is a subspecialty within a degree and major, which reflects that the student has fulfilled a designated, specialized course of study, which qualifies the student as having distinctive skills and training in one highly concentrated area of the major. Concentrations are formally-recognized educational designations (including the assignment of a university plan code for reporting/record-keeping purposes and appearance on the ASU transcript). Concentrations are to be distinguished from not formally recognized academic distinctions frequently referred to as "emphases," "tracks," "foci," "options," etc.

Submit the completed and signed (chairs, unit deans) proposal to the **Office of Graduate Academic Programs.** Mail code 1003 and electronic copies to ozel@asu.edu or Denise.Campbell@asu.edu

Please type.

Contact Name: Dr. Michael Kroelinger, Executive Dean HIDA, PhD Program Director
Contact Phone: 5-5561 (or contact Chantel Powers, 7-8782)
College/School/Division Name: Herberger Institute for Design and the Arts
Academic Unit Name: The Design School within the Herberger Institute for Design and the Arts   (or proposing faculty group for interdisciplinary proposals)
Existing Graduate Degree and Major under which this concentration will be established: **Doctor of Philosophy (PhD) in Design, Environment and the Arts**
Proposed Concentration Name: **Digital Culture in Design**
Do Not Fill in this information: <u>Office Use Only</u>
Plan Code:
CIP Code:

1. Overview

A. Provide a brief description of the new concentration (including the specific focus of the new concentration, relationship to other concentrations in this degree program, etc).

Information and knowledge revolution of the last two decades has created a digital culture that permeates almost everything we do. It has invariably impacted design professions such as architecture, interior design, landscape architecture, industrial design, visual communication and media design, as well as the arts including performing and visual arts. While professionals in these fields use the new technology in their work, there is also an expectation that academic disciplines in design and the arts lead the way in understanding the implications of digital culture for society and the profession. Digital Culture concentration under the PhD in Design, Environment, and the Arts will focus on the role of computational systems in enhancing creativity and the quality of human design. It is intended to be informed by the liberal arts tradition of these disciplines as well. Graduates of the program should be thinkers as well as doers; they should learn to question the existing paradigms that govern the digital world as they impact design and the arts; they should be able to analyze systematically how digital tools affect the way designers and artists think, conceptualize, create and evaluate their designs and artwork, and as a result be able to come to a unique synthesis, leading the way in these fields.

Design is no longer only about the creation of inanimate buildings and artifacts. Digital technology is creating an interactive challenge for designers; one that begins at a simple level of intuitive interfaces to one that is more complex and focuses on personal product experience and smart buildings.

This concentration will primarily explore the impact of digital culture on how design of built environments, products and visual communications are designed and analyzed by design professionals and are utilized by their intended audience. Tools used for representation and visualization have always affected the visual vocabularies employed by designers, while finding the representation methods that best fit the intended design has always been a challenge from beaux arts to 2-D computer aided design (CAD) to 3-D building information modeling (BIM). Designers

unfortunately have lagged behind in shaping the very tools they use in creating their work and have instead allowed technology drive the formation of such tools. Ontologies explicitly used in CAD and BIM software or implied by visualization and analytical tools have lead to the present day digital culture in design professions. This concentration intends to educate students to be able to systematically question existing paradigms and ontologies of digital tools, evaluate the new paradigms that emerged as a result of digital culture, and propose new frameworks for design disciplines. Issues such as user interface design for new products, computer simulation of performance of buildings and products, effects of digital tools on architectural form giving, digital design processes, better incorporation of human factors into design tools, usability, interaction design are some examples of faculty expertise and areas of focus.

The concentration will draw from the existing strengths of the faculty of the Herberger Institute for Design and the Arts, and will be able to tap into the graduate coursework already offered by the Institute faculty. Balancing the breadth and the depth of the area of study will be a critical component of the concentration, since skills and knowledge in areas ranging from methods used in cultural studies to media theory, design methodologies to computer programming will be the essential components of the program. While these broad areas are covered, depth would be required in the area of emphasis and in the particular research and scholarly area of the student. The proposed coursework and program of study intends to create this delicate balance between breadth and depth.

The proposed concentration will be an integral part of a large network of research and education activities on media system development and design computation at Arizona State University. The program faculty will work with academic units across campus for the creation of a shared research and education experience in digital culture in design.

2. Impact Assessment

A. Explain the unit's need for the new concentration (e.g., market demand, research base, direction of the discipline, and interdisciplinary considerations). How will the new concentration complement the existing degree program, including enrollment, national ranking, etc?

The PhD program in Design, Environment, and the Arts is being transformed into a transdisciplinary program that brings together many of the disciplines in the newly established Herberger Institute for Design and the Arts. The program currently offers concentrations in:
- Design
- Healthcare and Healing Environments
- History, Theory, and Criticism

The program provides research experience for students wishing to pursue careers in industry as members of interdisciplinary design teams on environmental and energy issues, as well as for those wishing to teach in the architecture, design, or art fields. The program is currently being refocused, shifting its emphasis more heavily towards design, environment and the arts, and away from planning (concentration disestablished in 2010). The proposal to establish a new concentration in Digital Culture in Design aligns with this new direction.

We see the Digital Culture in Design concentration becoming a desirable and more focused alternative to the more traditional disciplinary concentrations in the program and a tool by which we can recruit students who are interested in new technology and media in an interdisciplinary format. Industrial Design, interior design, architecture, landscape architecture, art, intermedia, visual communication design, and AME (arts, media and engineering) faculty will be collaborating to offer this interdisciplinary concentration. Many successful PhD programs in the U.S. as well as abroad offer doctoral programs that are focused in a niche area, rather than offering broadly defined areas of study. This often helps bring recognition to the program, helps with recruitment of students with strong interest in the area offered, and helps build critical mass of faculty as well as students. University of Sydney, University of California, Berkeley, Georgia Institute of Technology, University of Michigan, among others, offer PhD programs in niche areas in design and digital technology. MIT's PhD program is strongly oriented towards media, and its media lab is the gold standard in programs that focus on new media. ASU's School of Arts, Media and Engineering has made a very strong name for itself since its inception in the late 1990's, and will be a partner in offering the Digital Culture concentration. The concentration will be unique in bringing design, arts and media together. We think this will help define the Digital Culture in Design program as a unique program both in the theories explored and the methods used.

B. Please identify other **related** ASU programs and outline how the new concentration will complement these existing ASU programs? **(If applicable, statements of support from potentially-affected academic unit administrators need to be included with this proposal submission.)**

There are no other programs that may be affected by this program.

C. Is this an interdisciplinary concentration? If yes, please address the relationship of the proposed concentration to other existing degree programs and any parallel or similar concentrations in these degree programs.

This is an interdisciplinary concentration as summarized above. The PhD program in Design, Environment and the Arts was originally conceptualized and implemented as a College-wide program in the then College of Design. Interdisciplinary has been one of the main premises of the program since its inception in 1994. Expanding this premise to all of the related disciplines in the newly created Herberger Institute for Design and the Arts will further the interdisciplinary agenda of the program.

Furthermore, the School of Arts, Media and Engineering (AME) already facilitates interdisciplinary research in digital media through graduate level parallel concentrations in Bioengineering, Design (through the current MSD concentration), Psychology, Dance, Art, Theatre, Music, Electrical Engineering, Computer Science and Engineering, and Educational Technology. Therefore, the Digital Culture in Design concentration will benefit from the connections already built with AME while attracting a different type of applicant to the program that AME PhD program currently enrolls . The Digital Culture in Design concentration will attract students with design backgrounds who are seeking a digital technology research foundation for their studies. Faculty in the other participating Herberger Institute schools routinely work with ASU faculty from engineering, construction, computer science, business, and the social sciences.

3. Academic Requirements and Curriculum

A. What are the total minimum hours required for the major and degree under which the proposed concentration will be established?

A total of 84 graduate academic credit hours are required.

B. Please provide the admissions criteria for the proposed concentration. If they are identical to the admission criteria for the existing major and degree program under which this concentration will be established, you may attach a copy of these criteria as they appear in the *Graduate Catalog*, departmental website, or other source (please indicate source).

Current PhD program admissions criteria require that applicants hold a master's degree in a related field. However, this concentration proposes to also consider applications from highly qualified bachelor's degree holders in design, media or the arts. The program also plans to admit few select students with bachelor's degree credential only.

The admissions criteria are as follows:

1. Each applicant must demonstrate entry level competencies as listed below. This can be demonstrated through a portfolio, examples of scholarly writing, or relevant previous coursework preparing the applicant to address digital culture in design (see below).
2. Meet the minimum admissions requirements including GPA, GRE scores, TOEFL scores (applicants from a country whose native language is not English), and other requirements as defined by the ASU Graduate College.
3. Hold a minimum of bachelor's degree in Architecture, Graphic Design, Industrial Design, Interior Design, Landscape Architecture, Arts media, or engineering, or upon the demonstration of equivalent standing. Master's degree holders will be given preference, however qualified bachelor's degree holders will also be given consideration for admission to the program.
4. Identify a proposed research topic, or list of possible topics, that align(s) with the research mission of the PhD program and the research interests of faculty.
5. Have a PhD program faculty member agree to serve as the mentor.

To demonstrate entry level concentration competencies, students may submit supplemental material when applying (a portfolio or otherwise) of previously developed mediated tools, coursework, or projects/papers demonstrating an understanding of computation and its application to digital culture, design, media and the arts. Coursework demonstrating entry level competencies may include such courses as:

- **Computer Applications**
- **Computer Programming**
- **Computer Graphics and Animation**
- **Authoring Tools**
- **Media Theory**
- **Design Theory**
- **3D computer modeling**
- **Building Information Modeling (BIM)**
- **Building simulation and analysis**
- **Database design and programming**
- **Multimedia Systems**
- **Interactive Technologies**
- **Digital Design**
- **Advanced Programming**

The above list is general and broad in scope, with the possibility of these topics being covered in a variety of ways. Each student's transcript will be individually evaluated to determine whether these topics have been addressed.

During admissions, specific required competencies for a particular student will be clarified based on the areas of research interest and the articulated research topic of the applicant.

C. If the proposed concentration is part of a larger, interdisciplinary agenda, please provide additional admission information related to students who may enter with various academic backgrounds, including expected entry-level competencies.

Students from both design and design-related discipline programs may apply. The interdisciplinary research nature will allow students to form a personal, flexible and holistic educational experience. Based on their area of research, students from non-design backgrounds may have to complete entry level core competencies as identified in the admission process. However, most students who enter into this concentration will come from a design background or an arts media background.

Additional coursework may be required as deficiency courses during admissions (to be determined with the advisor based on the individual applicant's deficiencies and must include well-defined computational requirements) Deficiency coursework does not count towards the minimum required credit hours for the degree.

(Please see Appendix for additional information regarding deficiency skills and coursework)

D. What knowledge, competencies, and skills (learning outcomes) should students have when they graduate from this proposed concentration program? Examples of program learning outcomes can be found at (http://www.asu.edu/oue/assessment.html).

In the Digital Culture in Design concentration, students will:

- Be able to analyze how environmental, product or visual communication design is impacted by digital tools and media

- Be able to analyze and evaluate key theories and methods in digital culture in design.

- Be aware of collaborative and multidisciplinary research methods to investigate current issues in digital culture in design research and development

- Be able to analyze conceptual basis of existing digital design tools and digital media.

- Be able to synthesize new conceptual frameworks for digital design tools and digital media; and evaluate their ramifications in the design and/or analysis of products, built environments and/or visual communication artifacts.

- Will be able to identify, use and evaluate relevant research methods in their field of study.

- Be able to present and disseminate the knowledge generated in their doctoral research.

E. How will students be assessed and evaluated in achieving the knowledge, competencies, and skills outlined in 3.D. above? Examples of assessment methods can be found at (http://www.asu.edu/oue/assessment.html).

Outcome: Core competency in interdisciplinary research principles.

Assessment: Students must receive a 3.0 or better in the two 3 credit interdisciplinary research core courses (EDP 7110/710). In addition, they must maintain a cumulative 3.0 GPA in the courses on their plan of study in the concentration. This capability will also be critically assessed in the oral exam for qualification to candidacy.

Outcome: Ability to independently conduct research in digital culture in design, including research methods design, mastery of skills needed to execute the plans and interpretation of research results regarding topics that may include digital design tools and digital media.

Assessment: The assessment of this status will be through the dissertation advisor on a continuous basis. In addition, the student will organize and present their research progress to their dissertation committee meetings annually. The dissertation advisor will prepare an annual evaluation of the student's progress that incorporates committee input; this evaluation will be given to the student for comment, and then the report and any student comments will be provided to the DEA executive committee   As part of the comprehensive exam, students will prepare a research proposal and be evaluated on it. The final assessment will be the final defense of the dissertation.

Outcome: The students will learn how to present and publish their research project results in a manner that makes a significant contribution to digital culture in design.

Assessment: The student's research should be submitted for publication in one or more peer-reviewed journals (actual publication may occur after graduation). The work by the student should be clearly identifiable and represent independent research. The total accomplishment of the student will be presented in a written dissertation that will be evaluated by the dissertation committee.

Outcome: Ability to function productively in an interdisciplinary digital culture in design activity. This includes the ability to make critical evaluations of the relative merit of research projects in regard to digital culture in design research and, if necessary for the body of research, test and evaluate existing computational systems or those developed by the student himself/herself as required for the body of research.

Assessment: As part of the core course sequence, students will be presented with problems in interdisciplinary research and asked to evaluate literature and presentations in diverse areas. They will be graded on this ability. In addition, students will be engaged in dissertation projects that explicitly involve interdisciplinary research and will be evaluated on it. The dissertation committee will judge how well the student's research proposal is designed and justified.

Outcome: The student will learn to effectively communicate digital culture in design principles and issues.

Assessment: In addition to class and cohort meetings and their required works-in-progress annual presentations to the dissertation committee, students will be given frequent opportunities to present their research in public at national/international meetings.

F. Please provide the curricular structure for the proposed concentration.

- Additionally, please ensure that all **new** required course proposals have been submitted to the Provost's office through the ACRES online course proposal submission system for approval before this concentration is put on the University Graduate Council and CAPC agendas.

Required Core Courses for the Degree		Credit Hours 6
(Prefix & Number)	*(New Course?) Yes or No?*	
EPD 700	**No**	**3**
EPD 710	**No**	**3**
Required Concentration Courses		Credit Hours 12
(Prefix & Number)	*(New Course?) Yes or No?*	
EPD 714 Current Research in Digital Culture in Design (revise existing course)	**No**	**3**

AME 598 (will be submitted as 510 for approval) Experiential Media Methodology and Theory I	**No**	**3**
AME 520 OR AME 531 OR AME 541	**No**	**3**
EPD 722 Theory and Methods in Digital Culture in Design	**Yes**	**3**
A graduate level course in architectural and/or design information systems; spatial database systems; data modeling; or computer graphics authoring system per approval of the faculty advisor (ANP 561, ANP 563, relevant ALA, DSC, GPH or PUP courses, etc.)	**No**	**3**
Elective Courses/Research *(Prefix & Number)*		**Credit Hours 24**
EPD 792		**3-12**
DSC 520		**3**
DSC 525		**3**
DSC 527		**3**
DSC 529		**3**
DSC 544		**3**
DSC 580		**3**
AME 598		**3**
AME 511		**3**
AME 520		**3**
AME 621		**3**
AME 630		**3**
AME 531		**3**
AME 640		**3**
AME 541		**3**
AME 650		**3**
AME 651		**3**
AME 592		**3**
AME 792		**3**
EPD 691		**3**
IND 548		**3**
ATE 521		**3**
ATE 560		**3**
ATE 598		**3**
ATE 562		**3**
ATE 591		**3**

ATE 556	**3**
APH 505	**3**
APH 515	**3**
COE 502	**3**
EPD 552	**3**
SOS 511	**3**
Dissertation	**Credit Hours** **12 total**
EPD 799	**12 total**
Total	**54**
Up to 30 credits for Previous Masters Degree or 30 approved graduate credits as defined by the student's dissertation advisor/committee	**30**
Total required credit hours	**84**

* There are a very wide range of courses offered in the graduate programs in the Institute, such as those in the MLA, M.Arch, MSBE, MSD, MFA, MUD programs. PhD students can benefit from taking some of these courses as electives based on the advice of their supervisory committee.

Structure of the concentration:	
Required core courses for the PhD degree:	**6 cr hrs**
Required core course for the concentration:	**12 cr hrs**
Research and electives as approved by the student's supervisory committee:	**24 cr hrs**
799 Dissertation:	**12 cr hrs**
Credit hours from a previously awarded master's degree (if the student does not already hold a master's degree, 30 additional cr hrs of relevant coursework or research credits must be completed under the advisement of the student's faculty advisor):	**30 cr hrs**
TOTAL:	**84 cr hrs**

Students will be accepted primarily from master's degrees held in the following disciplines: interior design, visual communications, industrial design, architecture, landscape architecture, and MFA degrees. Students without master's degrees will be reviewed on an individual basis regarding eligibility for admission.

G. Please **describe** the culminating experience(s) required for completion of the existing degree and major, and the proposed concentration (e.g., thesis, dissertation, comprehensive exams, capstone course(s), practicum, applied projects, etc.).

A dissertation will be required that focuses on a relevant and current research question regarding digital culture in design, visual communication, interior design, industrial design, architecture, and landscape architecture, media or art.

H. Please **describe** any other requirements for completion of the existing degree and major, and the proposed concentration (e.g., internships, foreign language skills, etc.).

There will be no additional requirements.

I. **For interdisciplinary programs**, additional sample curricular structures must be included as appendix items to this proposal relating to students with various academic backgrounds who may pursue the proposed concentration, including expected mastery of core competencies (e.g., course work, skills, and/or knowledge).

Please see sections 3.B, 3.C and the Appendix for additional information concerning deficiencies, as well as a detailed list of entry-level skills and requisite deficiency courses for the areas of emphasis in the proposed concentration.

4. Administration and Resources

A. How will the proposed concentration be administered (including recommendations for admissions, student advisement, retention etc.)? Describe the administering body in detail, especially if the proposed concentration is part of a larger interdisciplinary agenda. How will the graduate support staff for this proposed concentration program be met?

Admissions will be administered through the current PhD in Design, Environment, and the Arts. The PhD Executive Committee in Design, Environment, and the Arts will select students to admit from among the candidates. The PhD Executive Committee is comprised of faculty from SALA, SOA, and AME (for Digital Culture Concentration applicants only).

B. How many students will be admitted immediately following final approval of the concentration? What are enrollment projections for the next three years?

We anticipate accepting 1-2 students in the first year, 1-2 students in the second year, and 2-3 students in the third year for a total of 4-7 students total by year 3. We see the Digital Culture in Design concentration becoming a desirable and popular alternative to the more traditional disciplinary concentrations that already exist in the program and a tool by which we can recruit design students who are interested in an interdisciplinary approach to our craft.

C. What are the resource implications for the proposed concentration, including any projected budget needs? For Doctoral students, how will the students be supported financially? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this concentration please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this concentration.

In addition to existing computer labs at ASU and in the Herberger Institute for Design and the Arts, the School of Arts, Media and Engineering (AME) already has the necessary state of the art digital media facilities and labs for supporting the concentration. All students admitted to the concentration can have 24 hour access to AME facilities once they have received the necessary preparatory training and certification by AME lab managers. Between SDI, SALA, School of Art and AME all of the necessary personnel is available to ensure the smooth functioning of the concentration.

D. Please list the primary faculty participants with regards to the proposed concentration.

Name	Title	Area(s) of Specialization as they relate to proposed concentration
Aisling Kelliher	**Assistant Professor**	**SALA and AME**
Diane Bender	**Associate Professor**	**SALA**
Dosun Shin	**Assistant Professor**	**SALA**
Filiz Ozel	**Professor**	**SALA**
Michael Kroelinger	**Professor**	**HIDA and SALA**
Harvey Bryan	**Professor**	**SALA**
Thanassis Rikakis	**Professor**	**AME**
Muriel Magenta	**Professor**	**School of Art**
Kenneth Brooks	**Professor**	**SALA**
Reddy Agami	**Professor**	**SALA**
Thomas Hartman	**Associate Professor**	**SALA**
Prasad Boradkar	**Associate Professor**	**SALA**
Marlin Addison	**Clinical Assistant Professor**	**SALA**
Marco Jannsen	**Assistant Professor**	**SHESC**

David Tinapple	Assistant Professor	AME
David Birchfield	Assistant Professor	AME
Alfred Sanft	Associate Professor	SALA
Mookesh Patel	Associate Professor	SALA

5. Additional Material — Please attach any additional information that you feel relates to the proposed concentration.
(Please label accordingly, i.e., Appendix or Attachment A, B, etc.)

Appendix: Additional Information regarding deficiency skills and a sample deficiency course list

Approvals *(if the proposal submission involves multiple units, please include letters of support from those units)*

DEPARTMENT CHAIR
(Please print or type)   **Michael Kroelinger, PhD Director /in collaboration with Thanassis Rikakis, Director, AME**

(Please see signature on next page)

_____   _____
SIGNATURE   DATE

DEAN (Please print or type)   **Dr. Kwang-Wu Kim, Dean/Director of Herberger Institute for Design and the Arts**

(Please see signature on next page)

_____   _____
SIGNATURE   DATE

The following section will be completed by the GC following the recommendations of faculty governance bodies.

UNIVERSITY VICE PROVOST AND DEAN OF THE GRADUATE COLLEGE

_____   _____
SIGNATURE   DATE

Please note: Proposals for new concentrations also require the review and recommendation of approval from the University Graduate Council, Curriculum and Academic Programs Committee (CAPC), the Academic Senate (Information item only), and the Office of the Provost before they can be put into operation.

The final approval notification will come from the Office of the Provost.

GF0908E-92

Approval Signatures

Approvals *(if the proposal submission involves multiple units, please include letters of support from those units)*

DEPARTMENT CHAIR
(Please print or type)   **Michael Kroelinger, PhD Director /in collaboration with Thanassis Rikakis, Director, AME**
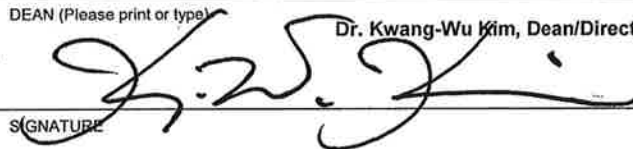
SIGNATURE _____   DATE   2.21.11

DEAN (Please print or type)   **Dr. Kwang-Wu Kim, Dean/Director of Herberger Institute for Design and the Arts**

SIGNATURE _____   DATE   2-22-11

The following section will be completed by the GC following the recommendations of faculty governance bodies.

UNIVERSITY VICE PROVOST AND DEAN OF THE GRADUATE COLLEGE

SIGNATURE _____   DATE _____

Please note: Proposals for new concentrations also require the review and recommendation of approval from the University Graduate Council, Curriculum and Academic Programs Committee (CAPC), the Academic Senate (Information item only), and the Office of the Provost before they can be put into operation.

The final approval notification will come from the Office of the Provost.

GF0908E-92

<u>**APPENDIX:**</u>

Additional Deficiency Information and Sample Deficiency Course List

At the time of admission decisions, students will be informed of the research, design or computational skill deficiencies and courses needed to address those deficiencies (as outlined below).

RESEARCH SKILLS: Students with no research background must take a master's level research methods course such as DSC 500: Research Methods or equivalent in the first fall semester. Students can be required to enhance their research abilities by completing research methodology courses outside of the Herberger Institute for Design and the Arts with courses such as COE 502: Introduction to Data Analysis or entry level Statistics courses per the advisement of their faculty advisor. These courses may be designated as deficiency courses during admissions.

DESIGN SKILLS: Students who are new to design may be required to complete one or more of the following courses as deficiency courses depending on their background in design:

- **DSC 520: Contemporary Design Issues**
- **DSC 527: Contemporary Design Theory**
- **DSC 529: Design Criticism**
- **AME 598 (proposed AME 512): History and Analysis of Media/Arts and Technology**

COMPUTATIONAL SKILL: Students who are lacking computational background or skills in digital media may be required to complete one or more courses as deficiency courses. The Digital Culture Curriculum (digitalculture.asu.edu) offers undergraduate level courses in all key areas of digital culture and design. Incoming students may be asked to complete one or more of the digital culture courses to address deficiencies. These courses do not count towards completion of the graduate program of study. A sample listing of these courses is in Appendix B. Students should meet with the program director to confirm actual courses which may be available on a yearly basis to fulfill deficiency requirements.

For the Digital Culture in Design concentration, applicants must demonstrate computational skills at CSE 101 level with basic programming language knowledge in Java, C, C++, VBA or in any authoring languages in commercial graphics software such as AutoCAD, Revit, Rhino, etc. Such an entry-level computational course may be included as a deficiency course during admissions,

<u>**SAMPLE LISTING OF COURSES WHICH MAY FULFILL DEFICIENCIES**</u>

AME 194:	Topics in Digital Culture
AME 194:	Computational Thinking
AME/ART:	Intro to Interactive Environments
AME 294:	Programming for Media Arts
DSC 294:	Hybrid Action: Physical Intelligence in Digital Culture
DSC 294:	Media Editing
DSC 394:	Digital Modeling
ANP/AME 394:	How to Build a Digital Physical System
AME 394:	Compositional and Computational Principles for Media Arts
ANP 394:	Digital Fabrication
AME/PSY 394:	Memory and Cognition
CSE 394:	Data Structures
AME 394:	Media Theory
AME 494:	Integrated System Development for Digital Culture
AME 494:	Animating Virtual Worlds
ANP 494:	Digital Ecologies: Parametric Systems Design
ANP 494:	Design by Algorithm
ANP 494:	Designing Hybrid Spaces
ART/AME 494:	Media Installations
EEE/CSE 494:	Information Analysis and Search for Digital Culture

The listing of courses will be updated annually and as special topic courses in the list are replaced by permanent course numbers.

Curriculum Planning Submission – Herberger Institute for Design and the Arts Approval

From: Chantel Powers [mailto:cpowers@asu.edu]
Sent: Wednesday, February 23, 2011 3:07 PM
To: curriculumplanning@asu.edu; curriculum@asu.edu
Cc: Michael Kroelinger; Elizabeth King (HIDA); Kwang-Wu Kim; Denise Campbell
Subject: Digital Culture in Design PhD Concentration Proposal

Executive Dean Kroelinger has asked that I submit the attached document, which has been reviewed and approved. The originals with signatures will be sent to Denise Campbell in the Graduate College.

1) A proposal to add a concentration Digital Culture in Design to the PhD in Design, Environment and the Arts (ARENVDEPHD)

Please let us know if you have any questions.

Best,

Chantel Powers, M.Ed.
Assistant to Executive Dean Michael D. Kroelinger

ASU Herberger Institute for Design and the Arts
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PO BOX 872102, Tempe, AZ 85287-2102