Masters in Design

Interaction Design

COURSES OF STUDY

IDC, IIT Bombay

M.Des in Interaction Design

The M. Des programme in Interaction Design aims at
imparting knowledge and furthering research into the
domain of designing interactive experiences in media,
products and computer design applications. It will create
graduates with good analytical abilities, skilled with specific
techniques, creative in their solutions, sensitive in their
approach and knowledgeable about current practices of
interaction design. The program will have a specific focus
on the needs of Indian users and the Indian industry.

Interaction Design Course Content - Semester 1

Course Number	Course Name	L	T	ST	Credits
ID 649 / VC 601	Studies in Form I / Visual Language – Syntactics	0	0	4	6.0
IN 601	Interactions, media, senses	1.5	0	2	6.0
IN 603	User Studies	1.5	0	2	6.0
VC 609	Art, Design and Society I	2	0	0	4.0
ID 643	Design Issues	2	0	0	4.0
	Elective I				6.0
	Elective II				6.0
	Total Credits for Semester I				**38.0**

Interaction Design Elective Courses - Semester 1

Course Number	Course Name	L	T	ST	Credits
VC 603	Image Making and Representation I	0	0	4	6.0
VC 605	Photo Communication	0	0	4	6.0
ID 627	Elements of Design	0	0	4	6.0
ID 629	Media Investigation and Communication Methods	0	0	4	6.0
ID 645	Exposure to Design	0	0	4	6.0
ID 667	Design Workshop I	0	0	4	6.0
AN 609	Life Drawing	0	0	4	6.0
IT 640	Modern Information Systems	3	0	0	6.0

IN 601
Interactions, Media, Senses   0 0 4 6

- Designing interactions for the physical, cognitive and social environments of the user.
- Medias and co-evolution of technology Understanding design in the context of digital, time-basedproducts with data storage, connectivity, sensors, actuators and multi-modal displays.
- Study of how people perceive, understand, use and experience interactive objects and spaces.

Text/ References:
- Bonsiepe, Gui; Interface: an approach to design; edited by Dawn Barrett; Maastricht: Jan van Eyck Akademie (1999)
- McKim, Robert; Experiences in Visual Thinking, Publisher: Brooks/Cole Publishing Company, 1980
- Buxton, Bill; Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies), Morgan Kaufmann, 2007
- Ackerman, Diane; A Natural History of the Senses, Vintage, 1991 ISBN 0679735666
- Wurman, Richard Saul; Information Architects, Watson-Guptill Publications, 1997
- Cooper, Alan; Reimann, Robert; About Face 2.0 the Essentials of Interaction Design; Wiley (2003)
- Dix, Alan J.; Finlay, Janet E.; Abowd, Gregory D.; Beale, Russell; Human-Computer Interaction, Pearson Education; 2 edition (1998)
- Galitz, Wilbert O.; The Essential Guide to User Interface Design; Wiley; 2 edition (2002)
- Garrett, Jesse James; The Elements of User Experience; New Riders (2003)
- Gershenfeld, Neil; When Things Start to Think; New York: Henry Holt (1999)
- Mandel, Theo; The Elements of User Interface Design; Wiley; (1997)
- Norman, Donald A.; The Design of Everyday Things; Basic Books; 1988
- Preece, Jenny; Rogers, Yvonne; Sharp, Helen; Interaction Design: Beyond Human-Computer Interaction; John Wiley & Sons, Inc. (2002)

IN 603
User Studies   1.5 0 2 6

- Gathering user data through contextual inquiry techniques
- Interpreting interviews within groups, creating work models (flow, sequence, culture, physical, artifact etc.)
- Consolidating data across users
- Building affinity diagrams
- Using data in the design process
- Comparison of contextual interview to other techniques such as survey research, focus groups, Rapid Assessment Procedure, task analysis.
- Focus will be on studying problems faced by users from rural areas, users with special needs, literacy issues etc.

Text/ References:
- Beebe, James; Rapid Assessment Process; Rowman & Littlefield (2001)
- Beyer, Hugh; Holtzblatt, Karen; Contextual Design: Defining Customer Centered Systems; Morgan Kaufmann (1997)
- Hackos, JoAnn T.; Redish, Janice C.; User and Task Analysis for Interface Design; Wiley (1998)
- Handwerker, W. Penn; Quick Ethnography; Altamira Press (2002)
- Cooper, Alan; Reimann, Robert; About Face 2.0 the Essentials of Interaction Design; Wiley (2003)

Interaction Design Course Content - Semester 2

Course Number	Course Name	L	T	ST	Credits
IN 602	Interaction Design	1.5	0	2	6.0
IN 618	Human Factors in Interaction Design	1.5	0	2	6.0
VC 614	Art, Design and Society II	2	0	0	4.0
VC 654	Semantics and Communications Theory	1.5	0	2	6.0
	Elective III				6.0
	Elective IV				6.0
	Total Credits for Semester II				**34.0**

Interaction Design Elective Course - Semester 2

Course Number	Course Name	L	T	ST	Credits
VC 602	Image Making and Representation II	0	0	4	6.0
VC 604	Digital Video Communication	0	0	4	6.0
VC 618	Information Graphics	0	0	4	6.0
VC 620	Advanced Typography	0	0	4	6.0
VC 624	Designing Interactive Experiences	0	0	4	6.0
VC 626	Story and Narrative	1.5	0	2	6.0
ID 634	Sketching for Designers	0	0	4	6.0
ID 638	Product Interface Design	0	0	4	6.0
IN 604	Usability Evaluation	1.5	0	2	6.0
IN 612	Interactive Medias *	0	0	4	6.0
IN 614	Soft Prototyping Techniques	0	0	4	6.0
AN 608	Anatomy and Drawing	0	0	4	6.0
ID 668	Design Workshop II	0	0	4	6.0
	Institute Elective				6.0

IN 602
Interaction Design   0 0 4 6

- Design methodology for complex products, services and events: Design of integrated systems, products for future use, products to be used in groups, devices used in public places, design of multi-modal interfaces, expressive interfaces, products that enrich user experience
- The course takes an inter-disciplinary approach drawing upon product design, visual communication, information architecture, cognitive psychology and computer science. The course involves exploration of alternatives, pushing the envelope of what is known.
- The focus is on working collaboratively in groups to solve design problems. The course will involve doing projects. Students need to build soft prototypes of proposed systems at the end of the course.

Text/ References:
- De Bono, Edward; Lateral Thinking, A Textbook Of Creativity; Penguin Books (1970)
- Laurel, Brenda; Computer as Theater; Addison-Wesley Pub Co (1993)
- Mayhew, Deborah J.; The Usability Engineering Lifecycle: A Practitioner's Handbook for User Interface Design; Morgan Kaufmann (1999)
- Norman, Donald A.; Invisible Computer: Why Good Products Can Fail, the Personal Computer Is so Complex and Information Appliances Are the Solution; MIT Press (1998)
- Raskin, Jef; The Humane Interface: New Directions for Designing Interactive Systems; Pearson Education (2000)
- Rosenfeld, Louis; Morville, Peter; Information Architecture for the World Wide Web: Designing Large-Scale Web Sites; O'Reilly & Associates; 2nd edition (2002)
- Tufte, Edward; Envisioning Information; Graphics Press (1990)

- Myerson, Jeremy; IDEO: Masters of Innovation, Publisher: te Neues Publishing Company 2001

IN 618
Human Factors in Interaction Design   1.5 0 2 6

- Introduction to human factors – role of psychology, physiology in interaction design
- Human factors in work station and work environment design
- Sensation and perception
- Cognitive psychology
- Human information processing and execution
- Research methodologies and applied statistics
- References:
- Ratner, Julie (ed); Human factors and web development; Lawrence Erlbaum Associated (2003)
- Sanders, Mark S; McCormick, Ernest J; Human factors in engineering and design, McGraw Hill (1993)
- Zunse, Leonard; Visual perception of form; Academic Press (1990)
- Journal of Human Computer Interaction

IN 604
Usability Evaluation   5 0 2 6

- Human information processing, human memory
- Fitt's law, Hick's law
- Human errors
- Heuristic evaluation, cognitive walkthroughs
- User testing using think aloud protocol and its variations
- Field trials and user logs
- GOMS
- Theoretical models for evaluating products
- Introduction to software testing techniques

Text/ References:

- Dix, Alan J.; Finlay, Janet E.; Abowd, Gregory D.; Beale, Russell; Human-Computer Interaction, Pearson Education; 2 edition (1998)
- Dumas, Joseph S.; Redish, Janice C.; Practical Guide to Usability Testing; Exeter : Intellect (1999)
- Nielson, Jackob; Usability Engineering; Morgan Kaufmann (1993)
- Winograd, Terry (Editor); Bringing Design to Software, Addison-Wesley, 1996 ISBN 0201854910

IN 612
Interactive Medias   0 0 4 6

- Introduction to time media, video, audio, games
- Story telling in an interactive medium
- Design of multi-modal, sound and conversational interfaces
- Building interactive installations and exhibition spaces

Text/ References:

- Select papers from HCI journals and conferences
- Lambert, Joe; Digital Storytelling: Capturing Lives, Creating Community, Life on the Water Inc, 2008
- Wardrip-Fruin, Noah (Editor); Montfort, Nick (Editor): The New Media Reader, MIT Press, 2003 ISBN 0262232278

IN 614
Soft Prototyping Techniques   0 0 4 6

- Video prototyping
- Body storming
- Constructing models and 3D prototypes
- Other prototyping methods – Paper, Power Point, Video Prototypes, Theatre
- Making prototypes through building blocks

Text/ References:
Select papers from HCI journals and conferences

Interaction Design Course Content - Semester 3

Course Number	Course Name	L	T	ST	Credits
VC 615	Indian Thoughts and Traditions	2	0	0	4.0
IN 610	Trends in Interaction Technology	1.5	0	2	6.0
	Elective V				6.0
	Elective VI				6.0
INP 601	Summer Project 1 (Mid May - Mid june)				6.0
INP 602	Design Project 2 (Mid June - End november)				18.0
	Total Credits for Semester III				**46.0**

Interaction Design Elective Courses - Semester 3

Course Number	Course Name	L	T	ST	Credits
VC 627	Advanced Digital Video Communications	0	0	4	6.0
VC 619	Advanced Photography	0	0	4	6.0
VC 635	Studies in Human Computer Interaction	0	0	4	6.0
VC 637	Experimental Animation	0	0	4	6.0
VC 667	Visual Culture	1.5	0	2	6.0
ID 639	Design Management and Professional Practice	1.5	0	2	6.0
ID 653	Product Detailing	0	0	4	6.0
ID 657	Advanced Ergonomics	0	0	4	6.0
ID 659	Product Semantics	0	0	4	6.0
ID 665	Craft, Creativity and Post-Modernism	0	0	4	6.0
ID 669	Design Workshop III	0	0	4	6.0
ID 675	Designing Game for Children	0	0	4	6.0
IN 653	Instructional Design	1.5	0	2	6.0
AN 611	Representation Methods for Animation	0	0	4	6.0
	Institute Elective				6.0

IN 610
Trends in Interaction Technology   1.5 0 2 6

- History of technology development,
  influences on society and design
- Information and communication
  technology, past, present and future
- Influences from other media
- New trends in interaction design
- Interaction design in the context of India
- Design for future needs
- Students choose a topic in this area and
  submit a paper at the end of the semester.

Text/ References:
- Moore, Geoffrey A.; Crossing the Chasm;
  HarperBusiness; Revised edition (2002)
- Lewis, Michael; The New New Thing: A
  Silicon Valley Story; Penguin Books (2001)
- Sculley, John; Byrne, John A.; Odyssey: Pepsi
  to Apple... a Journey of Adventure, Ideas and the
  Future; Harpercollins; Reprint edition (1988)
- Select papers from HCI journals and conferences

IN 653
Instructional Design   1 0 3 6.5

- Elements of learning, learning theories of
  behaviourism, cognitivism and constructivism,
  Piaget's development theory
- Elaboration theory, Posner and Strike method,
  Bloom's taxonomy, Merrill's content classification,
  Gagne's categories, conditions and events of
  learning, Shank's theory of instructional design
- Instructional design development process
- Computers as teaching and learning tools
- Case studies in e-learning

Text/ References:
- Forman, George E.; The Child's Construction of
  Knowledge: Piaget for Teaching Children; National
  Association for the Education of You (1983)
- Furth, Hans G.; Wachs, Harry; Thinking Goes to School:
  Piaget's Theory in Practice; Oxford University Press (1982)
- Gagne, Robert M.; Wager, Walter W.; Golas,
  Katharine; Keller, John M.; Principles of Instructional
  Design; Wadsworth Publishing; 5th Edition (2004)
- Reigeluth, Charles M.; Instructional-Design Theories
  and Models: A New Paradigm of   Instructional Theory
  (Instructional Design Theories & Models); Lea (1999)

INP 601
Summer Project I   6

(Mid June to mid July)
- This is a design project done during summer
  company. The objective of this project is to expose
  the student to the current industry practices in
  his chosen area of interest. This project is expected
  to influence the degree project in many cases

INP 602
Design Project II   18 Credits

(Mid July to November end)
- An independent project with one of the following focus:
- Design project of student interest and / or
  faculty interest and / or industry project
- Re-design project that relooks at an
  existing problem or situation
- Research project, delving into
  methodological or pedagogic issues
- Exploration project, exploring application possibilities
  in a new technology or medium or variations

Interaction Design Elective Courses - Semester 4

Course Number	Course Name	L	T	ST	Credits
IN 694	Design Research-Seminar	0	0	4	6.0
INP 603	Design Project III – Stage 1 (from December 1st – end February)				12.0
INP 604	Design Project III – Stage 2 (from March – April /June)				24.0
	Total Credits for Semester IV				**42.0**
	Total Credits for M Des. programme in Interaction Design				**160.0**

IN 694
Design Research-Seminar   **0 0 4 6**

- The course involves student researching in an area
  related to design and is expected to produce
  an insightful report or a paper on the topic.
  Students need to choose a topic suggested by a faculty
  member and work under faculty guidance. The work
  may involve primary and secondary research,
  creative exploration out alternatives, experimental
  set-ups and methodical documentation. Students are
  encouraged to explore new fields, materials and media,
  with a focus on analysis. The student is required to
  present a seminar on the topic at the end of the semester.

INP 603
Design Project III Stage 1   **12**

- Duration: 3 months from December end of February.
- This project could be an extension of the
  previous project (if the scope of the project
  justifies the extension) or it could be an independent
  project with one of the following focus:
- Design project of student interest and / or
  faculty interest and / or industry project
- Re-design project that relooks at an
  existing problem or situation
- Research project, delving into
  methodological or pedagogic issues
- Exploration project, exploring application possibilities
  in a new technology or medium or variations

- The evaluation of the Stage 1 of Project III is done
  internally with a panel appointed by the DPGC in
  consultation with the guide. The panel will consist
  of the guide and two other faculty members.

INP 604
Design Project III Stage 2   **24**

- Duration: 2-4 months from March – end June.
- This project will be an extension of the project
  III and should include development of the final
  design concept. The defence presentations will
  be held during the month of April and time given
  till the end of June to complete the jury feedback,
  final drawings and finer detailing of the project
- The evaluation of the Stage 2 of Project III is done
  by a panel of examiners appointed by DPGC.
  The panel will consist of external jury member
  along with an internal examiner, the guide and
  the chairman (A Professor or an Associate Professor
  from another Department of IIT Bombay)